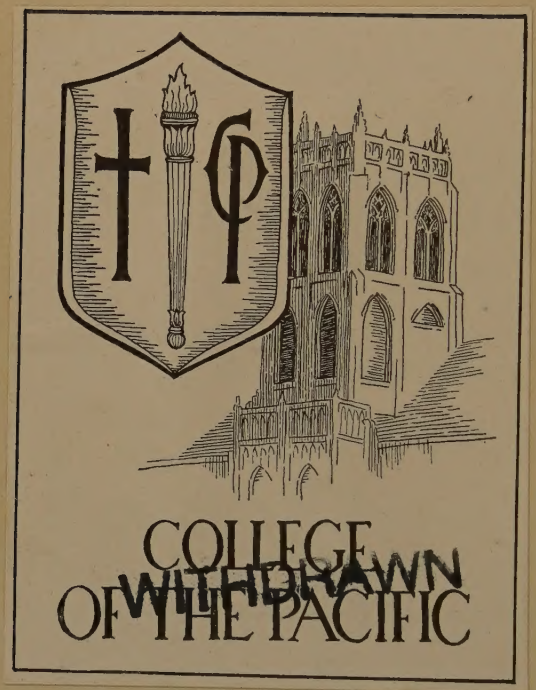

WITHDRAWN

College of the Pacific
Stockton, Calif.

LUCRETIUS
EPICUREAN AND POET

BY JOHN MASSON, M.A., LL.D.

'Jam rebus quisque relictis
Naturam primum studeat cognoscere rerum.'
LUCR., III. 1071-2.

LONDON
JOHN MURRAY, ALBEMARLE STREET, W.
1907

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DEDICATED

IN AFFECTIONATE REMEMBRANCE AND DEEP REGARD

TO

JOHN FORBES WHITE

HUMANIST AND LOVER OF ART,

TRUE SCHOLAR, CITIZEN, FRIEND

The lense will not disprove
A present that eludes it . . .
Though you saw the final atom-dance,
Making each molecule, that stands for sign
Of love, being present, where is still your love?'

ROBERT BROWNING.

17378

PREFACE

LUCRETIUS'S style is of the clearest, but his poem is so closely packed with Epicurean doctrines, and these are often so intricate, that we cannot dispense with an expositor. First and foremost, I must acknowledge my obligations to Munro. Much as Lachmann performed for the text, he left almost everything undone for the exposition of the poem, a task of excessive difficulty. Munro's success is due to gifts rarely united in one man, to his splendid mastery of Latin, to his astonishing grasp of Epicureanism, to his vigour of intellect combined with the imaginative insight which allowed him to enter into the spirit of the poet. It is in virtue of the last gift, which is akin to the poetic faculty, that Munro, even where we have to reject his reading, never gives a sense *beneath* his author. In spite of the advance in our knowledge of Epicurus's system, no editor has equalled Munro in his grasp of Epicurean doctrines as forming a whole. He realizes every side and bearing of Lucretius's argument, and condenses in a sentence what later editors require a page to explain. It is often forgotten that Munro's three editions of 1864, 1866, and 1873 have the value of three different books, representing the successive efforts of a powerful intellect, as bold as cautious, always

penetrating deeper into the subject, each edition being a marked advance upon the preceding one.

Munro built upon the foundation laid for him by the greatest scholar of France, and one of the greatest that Germany has produced—Lambinus and Lachmann. No other Latin classic can claim three such editors.

Since Munro's day much has been done for the exposition of the poem. Every student of it is indebted to the wealth of learning and shrewd criticism of Brieger, also to the elaborate commentary of Giussani, which often supplements Munro. The edition of Bockemüller (1873), though he is often deficient in judgment, is original and worth sifting. Mr. J. D. Duff's short editions of Books III. and V. are very useful, especially the valuable introduction to the former (1903). Professor F. W. Kelsey's edition (Books I., III., and V.; Boston, 1884) has a special interest as calling attention to the philosophical import of the poem. Heinze's very careful edition of Book III. (1897) marks a new and very conservative epoch in dealing with the text. Merrill's valuable edition (pp. 806; New York, 1907) reached me after the present book was in print.

As regards translation, Munro saw that for a book embodying a system of philosophy, largely physics, anything like paraphrase was out of place; his rendering, like the rest of his work, is strong, direct, terse: every word is faithful and has its value. Unsatisfactory as a literal rendering is for most writers, even the finer and pathetic passages of the poem are often admirably reproduced by him. The poetical version of T. C. Baring, M.P. (under the title, 'The Scheme of Epicurus,' 1884), is vigorous, and I have frequently found it helpful.

Among expositors of the poem I am specially indebted to the four admirable chapters of W. Y. Sellar's 'Roman Poets of the Republic' (second edition, 1881), which show profound insight and sympathy, though both here and in his 'Virgil' Sellar even too scrupulously avoids writing for effect; also to Constant Martha's eloquent book, 'Le Poème de Lucrèce' (second edition, 1873). Professor Fleeming Jenkin's able article on 'The Atomic Theory of Lucretius' (reprinted in his 'Papers,' vol. i., 1887) has also been of service. Giussani's volume of dissertations, 'Studi Lucreziani' (1896), is often suggestive and valuable, but can hardly be called 'critical' in method; as Dr. Brieger, who highly esteems him, has said, Giussani tends to introduce into Epicureanism notions which are foreign to it.[1]

Usener has made the study of the sources of Epicureanism, in comparison, easy by collecting the texts bearing on each doctrine in his 'Epicurea' (1887), a magnificent specimen of German scholarship. I greatly regret that the new edition of that part of Zeller's work on Greek philosophy which deals with Epicurus has not yet come out, the last edition of this volume having appeared in 1881.

Special thanks are due to Professor J. S. Reid for his discussion of the Borgian life of Lucretius (found by me in 1894), which will appear mainly in the supplementary volume, though quoted here in Chapter II.; also to Professor F. R. Japp, of Aberdeen University, for his interesting and valuable reply to my query as to how

[1] His admiration of Epicurus leads him, says Brieger, 'Epikur's Gedanken weiter zu denken als dieser sie gedacht hat und auf diese Weise Fremdes in das System hineinzubringen' (*Berliner Philogische Wochenschrift*, 1898, p. 297).

far the discovery of radium affects the Atomic Theory ; also to an accomplished Italian scholar, the late Mr. Francis Pearse, of Pond House, Clapton, for sending me a translation of Stampini's pamphlet on the life of Lucretius ; and to Mr. Andrew Lang for his kindness in reading the pages dealing with Cicero's criticism.[1]

I have to thank Messrs. Longmans for permission to use an article on 'Lucretius and His Times,' which appeared in the *Edinburgh Review*, January, 1906.

The book owes much to the care with which my sister, Miss Mary Masson, has read the proofs, and to her criticism and suggestions.

I cannot neglect here to express the debt I owe to one who is perhaps the most original and subtle of living British scholars, whom many, besides myself, have felt to be the most searching and inspiring of teachers—Professor Lewis Campbell.

[1] I owe to Professor S. S. Laurie the anecdote on p. 374, which he heard from Professor Pillans.

EDINBURGH,
July, 1907.

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INTRODUCTION

PROBABLY there is no other poet who takes hold of our imagination in so sudden and arresting a manner as does Lucretius. We cannot forget the time, place, and season when first we read certain passages, much as we remember the day when we met for the first time one who has become an intimate friend. There is in him a deep sincerity of emotion and a strange directness of utterance which speaks a human spirit that is true, and at once compels our sympathy.

Lucretius introduces the hero of his poem thus :

> 'When human life lay grovelling on the earth
> Foully in piteous wise for all to see,
> Crushed down beneath Religion's heavy yoke,
> Who showed her head from out the heavens and lowered
> With hideous aspect down upon mankind,
> Then first a man of Greece it was who dared
> To lift up mortal eyes against her face
> And dared withstand her to her face the first.
> Him neither fables of the Gods could daunt,
> Nor thunderbolts nor heaven with threatening roar ;
> Nay, all the more did these stir up his fierce
> Vigour of soul, so that of mortal men
> He was the first whose heart a passion filled
> To burst the fast-closed bars of Nature's gates.'

At once Lucretius, with voice and gesture, commands our hearing. How vividly do we realize the atmosphere of fear, the cramped and darkened lives which false

religion ever engenders ! And our deepest heart assents to his protest that the soul of man is not to be scared nor coerced by mere force, however vast. Thoughts and feelings unknown to us before awake from deeps within us, and make answer to his daring words. This is the sure sign and credential of great poetry.

Lucretius continues :

> ' Therefore the living force within his soul
> Conquered, and out he passed, far, far beyond
> The flaming walls o' the world, and traversed o'er
> In mind and thought the boundless universe
> From whence victorious he returns to tell '—

lines unforgettable, not only in their grandeur, but in their reverence for the spirit that is in man ! The victory which Epicurus searched the universe to win is, of course, the discovery of Law in Nature. That knowledge Lucretius confidently believes must deliver mankind from all the bondage of life, and especially from superstition. ' A dream ' this may be called, but a noble one. How much of truth was in it, and how far did he see in advance of his day !

Victor Hugo does but express in more vivid words the experience of many when he writes : ' I remember one day in my youth at Romorantin, in a poor cottage we had there, under a green vine-trellis through which the air and light filtered in, I caught sight on a shelf of a book— it was the only one in the house : Lucretius's ' De Rerum Natura.' My professors of Rhetoric had spoken much evil of it to me, a fact which to me recommended it. I opened the book ; at that moment it might have been about midday. I happened on these powerful and calm verses :

> ' Nec pietas ullast velatum sæpe videri
> Vertier ad lapidem atque omnis accedere ad aras . . .
> Sed mage placata posse omnia mente tueri.'

'Religion is not to turn unceasingly towards the stone with head covered, nor to approach all the altars, nor to lie prostrate on the ground, nor to lift up one's hands before the shrines of the Gods, nor to sprinkle the temples with much blood of beasts, nor to heap up vows upon vows, but rather to behold all things with a mind at peace.'

I stopped to think, then I began to read again. Some moments after I could see nothing, hear nothing; I was plunged deep in the poet. At the dinner-hour I made a sign, by shaking my head, that I was not hungry; and at evening, when the sun set and the flocks returned to their folds, I was still in the same place, reading the marvellous book, and by my side my father with his white locks, seated on the threshold, and indulging my prolonged reading, was gently calling the sheep, which came one after another to eat a handful of salt in the hollow of his hand.'[1]

It is impossible to know Lucretius truly apart from Epicurus. The study of Epicureanism floods almost every page of the poem with a glaring searchlight. An Epicurean scripture can be quoted for every doctrine and for almost every argument. The youth who has been captivated by Lucretius's poetic genius finds out later to his astonishment how closely he reproduces all the doctrines of his master, some of them sordid enough. No doubt the poem is thus robbed of some of its glamour. Sayings which we admire for their high poetic fervour prove to be simply Epicurus's halting prose turned into glowing verse—verse that vibrates with the charm that an emotional nature lighted up by a vivid imagination can add. But, on the other hand, with what a glory of poetry does Lucretius transform Epicurus's mechanical

[1] 'William Shakespeare,' i. 4 ('L'Art et la Science').

explanation of the world from atoms and void! How vividly does he make us feel the world's wondrous origin, its awful background of infinite space and infinite force; how hazardously it holds its being by the precarious balance of vast warring forces, yet its beauty only made richer and more pathetic thereby! And what other poet could have given us in a single phrase that magnificent picture of 'the flaming walls of the world'?—

'Flammantia mœnia mundi.'

This is, indeed, creative imagination so to have built a palace out of Epicurus's bricks and stone.

Up till the middle of last century Lucretius's science was viewed as a mere craze on the part of a man of genius, putting old exploded theories into verse, and readers used to be advised to pass over the passages dealing with the Atomic Theory. The value of the poet's bold attempt is now better understood.

I have attempted to supply a careful account of Epicurus's atomic theory as set forth by the poet, and to show how far each of his propositions is in agreement with the conclusions of modern chemistry and physics. I have also endeavoured to point out the special vantage-ground of Epicurean science, and to show why it was possible for Epicurus's theory of the constitution of Matter, as revived by Gassendi, and adopted by Sir Isaac Newton and others, to become the basis of modern physics, and to develop, stage by stage, into the atomic theory of modern chemistry.

To Lucretius the existence of atoms as an unchangeable basis of Matter is necessarily connected with the fact of definite order and fixed laws in Nature. The crowning merit of Epicurean science was that at so early a time it took so firm a hold of the principle of Law in Nature,

a fact grasped as firmly by Lucretius as it is by any modern man of science.

Modern speculations regarding Evolution and the origin of Life, and, in particular, the famous controversy between Tyndall and Martineau regarding the 'Potency of Matter,' furnish a parallel which enables us to realize more clearly how Lucretius's Atomic Theory led him to a new conception of Nature as a self-working power, and how it developed into a naïve theory of Evolution.[1]

In explaining Lucretius's theory of the atomic structure of the soul, of the origin of consciousness, and of the method in which Will sets the body in motion, attention was called in a former volume,[2] so far as I know for the first time, to the subtle part which Atomic Declination plays in Epicurus's system. If it be thought that the importance of this doctrine is overestimated, I may quote the opinion of M. Guyau, who calls it, and, I believe, justly, 'the central and most original doctrine of Epicureanism.'[3] This doctrine of Lucretius stands closely related to Professor Clifford's theory of 'Mind-stuff.' The reasoning of both is based on the same principle, and both apply it with equal boldness.

This very remarkable Epicurean doctrine has been revived, transformed, and adopted as part of his own system by one of the most daring thinkers of the last

[1] Professor Flint says: 'The development theory has been ingeniously improved at many particular points in recent times, but it has not been widened in range. It was just as comprehensive in the hands of Lucretius as it is in those of Herbert Spencer. Its aim and method are still the same; its problems are the same; its principles of solution are the same; the solutions themselves are often the same ('Anti-Theistic Theories,' p. 69).

[2] 'The Atomic Theory of Lucretius,' 1884, chaps. vi. and vii.

[3] 'Le point capital et vraiment original de la théorie épicurienne' ('La Morale d'Épicure, 1881, p. 99).

generation. M. Jean-Marie Guyau explains[1] Atomic Declination as implying a power of 'Spontaneity,' or modified Free-will action, residing in all forms of Matter, and by its working producing what we call Chance. This he endeavours to prove was the actual teaching of Epicurus, and he accepts it as scientifically true. His theory of 'Spontaneity-in-things' is one of the most remarkable castles in the air which the history of philosophy can show. It has been examined at length in an additional chapter.[2]

Epicurus professed to study Science only for the sake of Theology, a profession most unfair to his genuine passion for science. But though his theology is the centre of his teaching, so little does it satisfy either the human heart or the demands of philosophy, that it has been matter for merriment or contempt to all his critics, from Cicero to the Fathers of the Church, and from them to the present day. Both because it is so essential a part of his system, and because of its intricacy, it seemed necessary to set forth at some length the strange, and indeed sad, 'Comedy' of the Epicurean Gods.

How strange a figure Lucretius's teacher was I have tried to show, making no attempt to reconcile the many and violent opposites which meet in him. The moral teaching of Epicurus has often been attacked—how naturally! seeing that he combines the noblest ethics with the very meanest, and yet how unjustly! His two main practical doctrines are, firstly, 'Self-sufficingness'

[1] In a long chapter of his very able work, 'La Morale d'Épicure,' 1882.

[2] See vol. ii. More than any other system, Epicureanism would seem to be open to misunderstanding, probably because it was eclectic. Of late years, indeed, a phantom Epicureanism has grown up, as seen in Guyau's theory, and in the far less plausible one regarding the Epicurean Gods put forth by Professor W. Scott and adopted by Giussani.

(or ' Independence '), by this meaning that to live truly we must make ourselves absolutely independent of wealth or worldly position; and, in the second place, the vital necessity of Friendship, which he lifts up into a kind of religion. The life that revolves between these two principles as between two opposite poles, and combines with them, as Epicurus did, a passionate desire to help all that suffer and are ignorant, cannot fail of nobleness.

The interpreter through whom Epicurus's Atomic Theory has penetrated and deeply influenced modern science was a remarkable man, now little known. Pierre Gassendi was a peasant's son, who rose to very high place in the University of Paris and also in the Church. Both in philosophy and in science one of the foremost figures of his day, Gassendi united with brilliant talents and high character a surprising astuteness and subtlety. Along with the most daring speculations he professed the utmost submission to the Church.

The ' fascination ' of the French scholar and man of science by the Greek thinker who lived two thousand years before him, his conversion to and complete assimilation of the chief doctrines of Epicurus, form a fact in its way unique. Through Gassendi's labours Epicurus's system literally and truly *lived again* in the modern world. Nothing shows the vitality of Epicureanism better than this vigorous late aftergrowth direct from the stem.

The controversies which followed Gassendi's revival of the Atomic Theory are of deep interest. Both the theologians and the philosophers of the time viewed that theory as essentially atheistic. In Gassendi's hand the atoms had, indeed, at once driven off the field the Accidental Forms, and Churchmen and others trembled lest along with these the belief in the Substantial Forms

(including the immortal Spirit of man) should also be destroyed. But out of these controversies the true doctrine of Forms emerged victorious, a doctrine fatal now as then to the Materialism which finds in clashing atoms a complete explanation of the world and human consciousness. I shall offer no excuse for my attempt to treat either this or the more recent controversy regarding the 'Potency of Matter.' How wide a range, indeed, would have been needed to do this adequately! But, without some account of these great controversies, the main questions raised for us to-day by Lucretius's poem would have been evaded, and the book left hopelessly incomplete. No healthy mind can be confronted with Lucretius's explanation of the world, set forth as it is with such passionate 'certainty,' yet not go on to consider where and how his system breaks down.

Ernest Renan, in his 'Life of Christ,' has said that our Lord was utterly unacquainted with Greek science and the conception of law which it had substituted for the government of the world by capricious Gods. 'Almost a century before Him,' says Renan, 'Lucretius had expressed in an admirable manner the unchangeableness of the general system of Nature. . . . Jesus knew nothing of this progress.'[1] There would seem, at first, something utterly irreconcilable between Lucretius with his daring Naturalism and that other Teacher, the one exhorting us to 'consider the lilies,' how in the beauty of their Divine idea they prompt humility and trust, while the other is never done with repeating, *Considera opera atomorum*. But is the antagonism so complete as it would appear? Is there not a common note in

[1] 'Vie de Jésus,' chap. iii. Renan possibly forgot that the notable Epicurean Philodemus, a contemporary of Cicero, was a native of Gadara, which Josephus calls 'a Greek city.' Surely his treatises must have been known there.

Lucretius's deep compassion for his brothers 'wandering all astray as they seek for the path of life'? And yet, again, in the earnestness with which he bids us 'each man lay aside his own affairs, and set his heart first of all to learn the nature of things'? Often and passionately as Lucretius insists that priestcraft and ritual are not religion, and fear is not reverence, do we not find the very same warnings reiterated in the Four Gospels as earnestly and as often, though the meaning is deeper? Inspiring all his merciless war with 'Religion' (by which he means superstition), there is a deep and true love to man. Yes, and an essential reverence also, for he would have men ashamed to believe that the Gods can be propitiated by casting to them one of their fellows as a victim.

The very force of Lucretius's imagination is ever rousing us to do battle with his doctrines. According to his creed, the world is a dead machine, not to be deemed a wonder, for had not Epicurus fully explained to all thinking minds *how* the atoms created it—how, indeed, it could not well avoid coming into being? But, after all his reasoning, to Lucretius's heart the world remains Divine and full of mystery.

LUCRETIUS:
EPICUREAN AND POET

CHAPTER I

THE TIMES OF LUCRETIUS

THE majority of mankind in every age are disposed to accept with an easy optimism the beliefs and institutions of their day as the best and only possible, which it would be folly, if not impiety, to try to amend. Others, like Lucretius, are determined to face the actual facts of life, and to tolerate no doctrine, however sanctioned, which conflicts with these, and they spend themselves gladly in order to lift up the burdens of ignorance and superstition and convention which press heaviest on their fellow-men.

Not a few of those finer spirits have had it borne in upon them that they lived upon the brink of a new era, when the world, weary of ages of falsehood and wrong, will suddenly accept their message and society all at once be regenerated. At such times, to these eager souls the earth seems throbbing with new life and gladness, all things that hate and work evil to man seem to be losing their power, and the very air vibrates with the thronging of immediate changes and of coming good. 'Bliss was it in that dawn to be alive.'

But though Lucretius preaches his gospel with a triumphant joy and faith, before him no such golden vista expands. He was possessed by the conviction that

the end of the world was nigh at hand. It was one of the leading doctrines of Epicurean science that the world, like all organisms, was born, and must have its periods of growth, maturity, and inevitable decay. To his boding mind the frequent earthquakes in Italy and elsewhere and the increasing barrenness of his own country indicated that the world had reached its extreme old age, and was exhausted, and must soon break up. He says :

'Nay, even now this age in which we live is enfeebled, and the earth, exhausted by bearing, scarce can bring forth small living things[1]—she who produced all races, and brought forth the huge bodies of wild beasts. . . . She first, spontaneously and of her own accord, produced for mortals the goodly corn-crops and glad vineyards ; she of herself gave us the sweet fruits and glad pastures, all of which now scarce thrive though aided by the toil of our hands. We break down our oxen and the strength of the husbandman ; we wear out our iron, yet we are scarcely fed by our tilled fields, so niggardly are they of their produce, and only after much toil do they grant harvest.

'And now the aged ploughman shakes his head and sighs over and over again to think that the labours of his hands have come to naught, and when he compares present times with times past he often praises the good-fortune of his father, and harps on the theme how the men of old were filled full of piety, and on their scanty piece of ground used to support life in perfect well-being, though in old days the holdings were far smaller, man for man, than now. Likewise the planter of the exhausted and shrivelled vine sadly cries out upon the changes in the seasons, and wearies Heaven with his prayers, and understands not that all things are wasting away little by little, and are passing to the grave, spent and worn out by age and length of years.'[2]

Were the Italian corn-fields and vineyards really less fertile than of old ? The poet's sombre imagination

[1] Such as worms or small creeping things. [2] ii. 1150.

doubtless exaggerated these symptoms of barrenness and decay, but the facts were there and plain enough. Lucretius only misread them. He forgot that, during a long period of civil war, agriculture had been neglected. The strong arms which had tilled the soil, once so prolific, were mouldering on many a battle-field. During the two years of the Social War alone, it is computed that no less than 300,000 men fell. Writers like Asinius Pollio and Cicero call Italy 'a scene of devastation' and 'a wilderness.'[1] Whole towns were destroyed. We find Virgil and Horace speaking of certain places, once busy and populous, as 'empty Acerræ,' 'empty Tibur.'[2] Many districts were going back to the waste. Again, wealthy absentee owners had bought up the farms at nominal prices, and had them cultivated by gangs of slaves. These, not being liable to military service, multiplied enormously,[3] while the free peasants were becoming extinct, and what was left of them were crowding into the towns or starving. The slaves did not love the land as the farmers of old had loved their 'dear croft,' their *dulcis agellus*. What wonder that the fields, so long neglected, had become less fertile? Quite apart from Epicurean teaching, the gloomy fancy of a dying earth seems to show what a strain those long years of civil war, with the consequent suffering and poverty, had left on the nerves and mind of Lucretius's generation.[4]

Lucretius's life fell before and during one of the chief crises of the world's history—that of the great Roman

[1] 'Italiæ vastitas,' says Pollio in 43 B.C. (Cicero, 'Ad Fam.,' x. 33). Cicero refers, as a fact well known, to 'Italiæ solitudinem' ('Ad Att.,' i. 19).

[2] 'Tibur vacuum' (Hor., Ep. i. 7, 45); 'Acerræ vacuæ' (Virg., Georgic, ii. 225).

[3] See Appian, 'De Bello Civili,' i. 7: *ἐκ πολυπαιδίας θεραπόντων ἀυξομένων διὰ τῆς ἀστρατείας καὶ τὸ τῶν θεραπόντων γένος ἀνὰ τὴν χώραν ἐπλήθυε.*

[4] The notion seems to have persisted. Columella, writing about 40 A.D., devotes the first chapters of his treatise on Agriculture to disproving it.

Revolution. It is the sign of a man of genius that he gives expression to the thoughts and feelings of his own age. We can no more explain all that is abnormal in Lucretius from the times in which he lived than we can explain all the strange personality of Schopenhauer, born in the year before the French Revolution, from his own era of European history and thought. But we shall understand him better when we see how largely he expresses his own era with its own outlook over the world, with its growing sense of the conflict between reason and the old beliefs, and the utter bewilderment of thinking men before the problem of man and his destiny. Strange as is Lucretius's silence regarding contemporary events, that silence probably testifies better than anything else could do to the startling changes and crises of his country's history, the seeming chaos of conflicting forces before which a nature like his could only find refuge in a system such as Epicureanism, which insisted almost absolutely on its convert's withdrawal from public affairs. Much in the same way many a man of intellect in the Middle Ages sought refuge within the walls of a monastery from a world which was too much for him.

The poet was born about 99 B.C. During his boyhood Lucretius must have heard many a terrible story of the Social War, when the Italian nations wrested from Rome a limited franchise, at the cost of enormous slaughter, from 90 to 89 B.C. When he was a boy of twelve took place the terrible massacre in the Forum, when the Italians who had come up to the Assembly to vote in repeal of Sulla's forced laws were ordered by the Consul Antony to disperse, and then slaughtered to the number of 10,000 men, as Plutarch tells us. The grudging concessions of the Romans left a deep discontent in Italy which engendered the Civil War, and the Samnites never laid down their arms till in 82 B.C. they were crushed in the Battle of the Colline Gate, when 6,000 prisoners were massacred in cold blood by Sulla close to the walls of Rome. If Lucretius, as a boy or youth, were living in

Rome at the time, this event must have left on him an impression of horror never to be forgotten. From 88 to 81 B.C. the Civil War lasted, the time of the dictatorships of Marius and Sulla, and of the proscriptions, when the lives of the best men were at the mercy of the basest, and the gods, it would seem, merely looked on. It was a time of fear, of mutual suspicion, when every man dreaded his neighbour, and all security and gladness of life were destroyed. Cicero says of Sulla's proscriptions: 'The horror of those awful times is so burned into our country that it appears as if not merely men, but even brutes, could not endure the thought of their returning.'[1] Sallust, describing the years preceding Catiline's conspiracy in 63 B.C., emphasizes the rapid break-down of the national character due to the sudden expansion of the State by conquest, which brought with it temptations too strong to resist. According to him, the epoch was marked by the horrible crimes of every kind which ambition, avarice, and luxury prompted.[2] Lucretius confirms Sallust's testimony when he says: 'Men amass property by bloodshed in civil war, and greedily double their riches, piling up murder upon murder. Cruelly do they exult in the sad death of a brother, and hate and fear the feasts of their kinsfolk.'[3] What could take place in a country town of Italy at this period may be read in Cicero's speech in defence of Cluentius, which sets before us a company of high-born criminals and a story of intricate and long-victorious villainy which it would be hard to match.[4] That speech, delivered in the year 66 B.C., is like a glimpse into some horrible gulf. It tells a history of real life stretching over twenty years in the little Samnite town of Larino, showing us how bold then was the criminal, how openly unjust the judge, how little chance of safety had the innocent in the time and State

[1] 'Tantus enim illorum temporum dolor inustus est civitati ut iam ista non modo homines sed ne pecudes quidem passuræ esse videantur' (Cicero, 'In Cat.,' i. 20).

[2] 'Catiline,' chaps. ix.-xii. [3] iii. 70 *ff.*

[4] It may be read in Principal Peterson's admirable translation.

to which Sulla and Marius had but lately applied the sweeping remedy of the sword.

What wonder if the young Lucretius began to doubt whether the gods exist at all, or, if they do, whether they take any more heed for the good than for the wicked. In 63 B.C. a great debate took place in the Senate as to the proper punishment to be inflicted on Catiline's arrested accomplices. Julius Cæsar, who was then thirty-seven years old, about the same age as Lucretius, wished to save them. One of the grounds he alleged against their execution was that this was too slight a punishment for so heinous an offence, since, after all, death is the end of troubles. 'To those who are in grief and misery death comes as a relief, not as suffering. Death annuls all the ills that flesh is heir to. Beyond it there is no place either for trouble or for joy.'[1] The speakers who followed, Cato and Cicero, the leading statesmen of Rome, treated this avowal with indifference, and barely remarked upon it. Cato, with a touch of sarcasm apparently, observed that Cæsar had delivered 'an eloquent and elaborate address on life and death, considering, I suppose, as false,' he goes on, 'those traditions which assign to the bad a dwelling-place of horrors far apart from the good.'[2] It seems as if he wished to point out the incongruity of such opinions in Cæsar's mouth. Cicero, again, treated the subject merely as an open question.[3] Doubtless many who sat before him thought the same as Cæsar. During that very year he had been appointed Pontifex Maximus—'Minister for Religion,' so to say. On this occasion the Senate was assembled in the Temple of Concord, in consecrated ground, augurs and flamens, the highest officers of religion, sitting in its ranks. We may wonder at Cæsar's daring to utter such an opinion

[1] Sallust, 'Catiline,' chap. li.

[2] 'Bene et composite C. Cæsar paulo ante in hoc ordine de vita ac morte disseruit: falsa, credo, existimans quæ de inferis memorantur: diverso itinere malos a bonis loca tætra, inculta, fœda atque formidolosa habere' (*ibid.*, chap. lii).

[3] Cicero 'In Cat.,' iv. 4, 5.

in such a place, while he himself held the highest office in the Roman priesthood. But we can hardly wonder that in such a world men should have doubted that any Providence cares for human affairs, and believed that, as Cæsar said, 'the mere caprice of fortune rules the world,'[1] and that the life to come holds no difference for good or bad. Cæsar's remark may have been lightly uttered.[2] Epicureanism had grown fashionable in Rome, and this was one of its chief doctrines. On the present occasion, when it was necessary to conciliate opponents, its expression seems most impolitic. But Cæsar had the straightforwardness which comes both of nature and of conscious strength.[3] All his life through he was singularly fearless, even when a youth defying the blood-reeking Sulla to his face.

In his very able book on Cæsar,[4] Froude says: 'Prob-

[1] 'Fortuna cujus libido gentibus moderatur' (Sallust, 'Catiline,' chap. lii.).

[2] Though extremely put, there is much of truth in the following: 'The Roman religion from first to last had no articles of belief; it was only the ceremonies of the Roman people, as the Emperor Valerian described it. Even a Roman *pontifex maximus* was not bound to believe in the existence of the gods. But no citizen was allowed to neglect the ceremonies or worship of the gods. There were the gods, but nobody cared to ask how they came there. There were the ceremonies of worship, but nobody cared to ask why these availed more than others. Such was the custom, such the discipline of the State, and that was enough. In short, they had no philosophy. Few peoples ever had more religion, few civilized States a lower religion' (from report in *Scotsman* of Gifford Lecture by Professor Gwatkin on 'Natural Theology,' June 13, 1905).

[3] His outspokenness could become reckless, as when, in his height of power, he said: 'The Republic is nothing; it is a mere phrase without body or form' ('Nihil esse rempublicam: appellationem modo sine corpore ac specie'—Sueton., 'Jul.' 77). No utterance could have been truer and none more imprudent. But Cæsar seldom attempted to disguise his contempt for the Senate.

[4] It would be easy for one versed in Roman history to point out errata in a work which deals with so great an epoch and so enormous a mass of materials as Froude's 'Cæsar.' These oversights have indeed been pointed out at length in a very thorough review by Sellar, who says that they 'do not affect the

ably almost everyone in the Senate thought like Cæsar on this subject. Cicero certainly did.' The Senate was probably the last place in Rome in which to look for religious belief. Yet, as human nature goes, some of the worst of Cæsar's hearers may have been the most horrified.

Moreover, it is not given to all to be *esprits forts*. In a nature like Cicero's consistency could hardly be looked for. When he appeals to the popular belief in portents, on occasions when he wishes to carry his audience with him, as in the orations against Catiline, we suspect his sincerity with good reason. When he is writing on philosophy and speaks calmly of a life to come and an eternal sleep as two alternatives, which are both tolerable, here, again, his attitude is probably to a large extent a professional opinion in the rôle of philosopher. We should rather seek for Cicero's real attitude of mind in those letters in which he poured forth his heart to his intimate friends. Thus he writes to Atticus that he hopes, before he dies, to see the fall of Cæsar, whom he regards as the enemy of his country. 'And yet,' he continues, ''tis time for me now to be thinking of that eternal life which is to come, and not of this little life.'[1] Did not the man who could speak thus find, to some extent, a real consolation in the thought of a life to come?

But had ordinary men, then, ceased to live for anything but wealth and power and material pleasures? Was

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general truth of Mr. Froude's views' (*Fraser's Magazine*, September, 1879, pp. 313-337). So much has been said of late by other scholars of Froude's 'errors,' that it is right to quote Sellar's estimate of the positive value of the book. 'Wherever Mr. Froude is dealing with Cæsar—that is, through three-fourths of the volume—he is at his best, and we read his narrative with sympathy and assent as unqualified as our pleasure and admiration' (*ibid.*, p. 332). There is no British or foreign scholar of the last half-century whose judgment could carry more weight in such a question than Sellar's.

[1] 'Id spero vivis nobis fore. Quamquam tempus est nos de perpetua illa jam, non de hac exigua vita cogitare' ('Ad. Att.,' x. 8).

religion utterly dead in Rome? If we are to judge from the Senate and the upper class, probably it was nearly so, unless we are to call superstition by that name. But before answering this question we must look further than the world of rank and culture which Lucretius knew.

In the condition of Rome there was much to disquiet anyone who loved his country. The old sense of patriotism and national honour which set country before self had largely been lost. The inefficiency or rottenness of the Roman government was flaunted before all eyes in the case of the pirates, who had formed a vast confederation, and commanded the seas from Gibraltar to Asia Minor with huge fleets, which sailed under admirals of their own, and gave battle with success to the fleets of Rome. Sometimes they swept off into slavery the population of whole islands and cities in the East. Sometimes the inhabitants of an entire city migrated inland in order to escape them, and left their cities to go to ruin. They made descents on Italy, carrying off eminent persons, whom they held to ransom, amongst others two prætors even from the Appian Way itself. They actually entered Ostia, the port of Rome, and there burnt a Roman fleet of war. They cut off the corn-ships, so that Rome itself was in danger of famine. The Roman armies did not venture to cross the Adriatic except in the depth of winter, when the pirates had retired. Instead of keeping up a common fleet to protect the subjects who paid her tribute, Rome taxed the provinces for squadrons of defence which were never built, the money being absorbed by Roman governors. The Senate connived at the traffic of Roman merchants with the pirate captains in slaves, their chief commodity, and one ever in demand at Rome. One Roman admiral sent against them was suspected of sharing their booty. Only the danger of famine to Rome itself forced the Senate to cope with the evil. Almost an unlimited command of the fleet and army was given to Pompey. In about three months he swept the Mediterranean, and completely destroyed this kingdom of the

sea. The ease with which the pirate war was brought to an end was as significant as the intolerable nature of the evil had been. No plainer parable could have been set forth of the greed of Rome and her indifference to the welfare of her subjects.

A real danger to the State lay in the immense number of slaves, who were ever a source of anxiety—anxiety which more humane treatment would have removed. Those employed in agriculture were kept in *ergastulia*, or 'houses of labour,' constructed partly underground, lighted by narrow windows so high up that they could not be reached.[1] Many of them were chained, so that the *vinctus fossor*, or 'chained labourer,' was a familiar figure on the farms, and, as later poets tell us of Etruria, 'the fields echoed with the clank of countless fetters.'[2] The slaves lived utterly at the mercy of the manifold brutality of bailiffs, taskmasters, and jailors.[3] These unjust social conditions flared up in the Slave War, when in 73 B.C. Spartacus, an escaped gladiator, set up his standard. The slaves flocked to it from the whole of Italy. For two years he held his own against the armies of Rome, defeated a prætor and two consuls who were

[1] 'Vinctis quam saluberrimum subterraneum ergastulum, plurimis idque an ustis illustratum fenestris atque a terra sic editis ne manu contingi possint' (Columella, i. 6).

[2] 'Et sonet innumera compede Tuscus ager' (Mart., ix. 22). Etruria had specially suffered, the inhabitants being evicted in order to reward with their lands Sulla's veterans, of whom 120,000 were then settled throughout Italy, most of them in Etruria. These soon sold their allotments, which came to form large estates.

[3] Columella is instructive here. He advises the owners of slaves to ascertain whether they are guarded sufficiently, whether the place of their confinement is safe and strong enough, whether the bailiff has put anyone in chains or removed his chains without the knowledge of his master, and adds that the proprietor should take the more care that they are not ill-treated, 'inasmuch as they are under the power of various persons—bailiffs, taskmasters, jailors—and are therefore the more liable to suffer injustice; and, again, when thus injured by cruelty and avarice, they are the more to be feared' (Col., i. 8).

sent against him, and overran the whole country from the Alps to Sicily. The cruelty which had caused the revolt showed itself again in the brutality with which it was finally stamped out. Pompey cut off to a man a body of 5,000 fugitives, while 6,000 slaves were crucified along the road from Rome to Capua, in order to terrify their comrades. In 63 B.C., during Cicero's consulship, the so-called 'conspiracy of Catiline' shook the State to its very foundations, and revealed the existence not merely of a plot, but of a great party who were dissatisfied with the mock government of the Senate; but this unwise and premature attempt at revolution under an unscrupulous leader, whose chief aim was to secure power for himself, only played into the hands of the nobles, and put off the day of reform.[1] All these things Lucretius had seen, though perhaps hardly with an open eye.

The less reality that the name of the Commonwealth, the *Respublica*, retained, the more jealously was that name invoked and the solemn forms of the constitution paraded in order to screen and justify oppression. If any attempt was made to curtail the privileges of the nobles, it was treated by them as treason amounting to sacrilege. How much, by the way, was now left of that original republican constitution? The Republic was justly a sacred name to Romans. It stood for a long and glorious fight in order to win freedom and civic rights. But that name, alas! had come to be more sacred than the thing, for liberty was gone. The so-

[1] None of the leading statesmen took any part in the rising. In one respect it may be compared to one of the most tragic and remarkable, yet perhaps in all its unwisdom one of the most heroic episodes in English history—the insurrection of Monmouth, when a few thousand peasants and artisans had the courage to rise in arms against the Government. Hardly a single nobleman or landed proprietor was among them. In Rome, too, the moment for a revolution, though drawing near, was not yet come. Catiline was a leader from whom honourable men held aloof, and many brave men threw their lives away for nothing.

called Republic had come to be a mere oligarchy administered by the nobles for their own interest. From the days of Marius to those of Cicero no 'new man'—no one, that is, whose ancestors had not held office—had been elected Consul or Prætor. As is usual under a corrupt government, there was the utmost distress in the country. The wealthy nobles had bought up the land, and had it cultivated by means of slave-gangs, while the peasants were crowding into the towns or starving. Again and again it was proposed to pass an Agrarian Law, and distribute among the poorer citizens the State land, the *ager publicus*, which had been taken originally by conquest. The nobles had divided this among themselves into vast estates, for which they paid a nominal rent—in defiance of the law, since by statute no one was allowed to hold more than 500 acres. Every proposal to settle the poorer citizens on this land, paying to the wealthy owners a compensation to which they had, strictly, no right, was regarded by the latter as a crime. They resisted it to bloodshed in the name of 'the Commonwealth,' 'the Laws,' etc.

But in the midst of this system of oppression and injustice there was growing up and waxing ever stronger a spirit of revolt. Men were sick of misgovernment. The bitterest party strife raged, the nobles regarding the public offices as their own by sacred right, and the reformers equally determined to secure some share of power. If any prominent popular leader seemed likely to succeed in his candidature, every device and legal trick was pressed into service in order to break off the election. If this did not avail, the nobles resorted to violence and procured his death, while his murderers were praised for their zeal in defending the constitution. If, on the other hand, the candidate of the people resisted force with force and any partisan of the nobles happened to be slain, the offence was treated as murder.

The leader of the aristocratic party was Cicero, who had commenced public life on the side of the people, but

had been won over. So extreme a partisan had he become that, in his first oration against Catiline, he could even speak of the Gracchi and other patriots as if they were criminals. No one knew better than the prosecutor of Verres to what injustice the government of the Senate could lend itself. But, ever since his consulship, the aristocratic party had cast its glamour over Cicero. His eyes were held that he should not see and know the hopeless baseness of the men whose side he had joined. Ambition and the sense of power, once tasted, dominated both his judgment and his better nature.

The times, indeed, were evil. The fabric of the old Roman State was fast breaking up. No wonder that Cicero and the nobles saw nothing but anarchy before them. But among the actors on that troubled stage there was going out and in one master-spirit who, amid the shock and storm of the earthquake shaking the whole Roman State, while old institutions were falling and old privileges being shattered, had the faith to see the birth of a new world, a wider and a greater Rome. Julius Cæsar faced the chaos of the time without despair. If the nobles were corrupt, he knew from his officers and legionaries the stern virtues that were left in the race.[1] He set himself at first to carry measures securing better government, while preserving the constitution. The irreconcilable spirit of the nobles, determined to allow no reform whatever, made this impossible. In despite of them the great forces of the time, discerned and guided by his genius, carried him on to higher and higher power, and at last he was able to pass measures, the 'Julian

[1] Cæsar's genius was assisted by the magnificent qualities of his army. 'Men whose nominal duty was merely to fight were engineers, architects, mechanics of the highest order. In a few hours they could extemporize an impregnable fortress on an open hillside. They bridged the Rhine in a week. They built a fleet in a month. The legions at Alesia held twice their number pinned within their works, while they kept at bay the whole force of insurgent Gauls entirely by scientific superiority' (Froude's 'Cæsar,' chap. xxviii.).

Laws,' which secured some degree of justice. Hitherto violence, bribery, and extortion were crimes in name forbidden to a Roman official, but in reality unpunished, make-believe prosecutions being in due course followed by acquittals. Cæsar broke down this solemn mockery of justice. Now and for many a year to come the Roman governor knew that if he pillaged his province and tortured his wealthy subjects until they filled his coffers he would be dealt with as an ordinary criminal. Cæsar now carried these laws through with the nation behind him, and suspending the power of the Senate. By these uncompromising reforms he roused against himself all the powers of evil. The hatred of the patricians was inflamed to a white heat. Had they dared, they would have torn him to pieces. But his rising power was so manifest that they could only look on with dismay. Cicero's letter to Atticus expresses this feeling: 'This monster and prodigy is a man of terrible watchfulness, promptitude, and laboriousness.'[1] And yet to Cicero himself, as to all his opponents in politics, even the bitterest, Cæsar showed himself courteous, generous, forgiving, after the highest fashion of Christian chivalry rather than like any hero of the old world.[2] Undisturbed by the hatred of the senators, he went on seeking to build up out of the ruins of the 'Republic' a new constitution which should secure justice and even—almost an audacious aim, if we consider the times—some measure of popular representation for the provinces.

Cæsar did not, like Cicero, despair of the State. He did not harangue the Senate, as Cicero had done, about 'a disease deep in the vitals of the State,' while the most hopelessly infected sat, unrebuked, on the benches before him. He did not talk of a tempest which 'in some in-

[1] 'Hoc τέρας est horribili vigilantia, celeritate, industria' (Cicero, 'Ad Atticum,' viii. 9).

[2] Cicero admits it in words which could hardly be stronger: 'Commemoranda quædam et divina Cæsaris in me fratremque meum liberalitas' ('Ad Fam.,' i. 9, 21). See also Munro's vigorous defence of Cæsar ('Catullus,' pp. 82, 83).

comprehensible manner had been destined to burst on the year of his consulship.'[1] He knew how long and in exactly what manner the rulers of Rome had been sowing the wind. No doubt to Cicero and his friends society seemed falling to pieces. The air was, indeed, full of portents. No walls, no doubled guards, could keep out of the Senate the deep and fierce murmurs of the disaffected. But in these very murmurs Cæsar saw that hatred of oppression and love of country which make men loyal to a true government. Though the governing body was hopelessly diseased, yet he saw that the heart of the country was sound. Doubtless there were among the nobles men who were honest, but wedded to old forms, and not shrewd enough to see that the Senate had become unfit to govern Italy, much less an empire grown so gigantic. These, even though honestly they worshipped 'the God of things as they are,' were certainly somewhat dull of heart to their country's deep distress. To such men Cæsar could only be a usurper.

It is the fashion nowadays to say that in Cæsar's time ordinary men could not regard him as anything else than a dangerous adventurer, bent on revolution for his own ends, and who consorted with unscrupulous men. We can now see the tendencies of the times, but Cæsar's contemporaries, we are told, could not be expected to do so. Some truth there is in this. There is an astounding letter in which Cicero refers to his own share in Cæsar's murder, not repenting of it, but stung beyond endurance by remorse for the little he or his party had gained thereby. He writes :

'If things go on thus, I like not the Ides of March. For he should never have come back after death, nor fear compelled us to ratify his acts ; or else, Heaven's curse light upon him, dead though he be ! so high was I in his favour

[1] 'Nescio quo pacto omnium scelerum ac veteris furoris et audaciæ maturitas in nostri consulatus tempus erupit.' There follows a notable comparison of the State to a man fever-stricken ("In Cat.,' i. 31).

that, seeing the master is slain and we are not free, he was a master not to be rejected at my time of life. I blush, believe me; but I have written, and will not blot it out.'[1]

Munro comments on this: 'For these awful words neither Cicero nor Cæsar is to blame, but the fortune of Rome. They express the feeling of the *boni*, the nobles generally, who could not see that old things had passed away.' Any possible excuse for Cicero would be welcome. But men are to be judged by deeds, not words, else the Roman nobles of that day were the greatest patriots the world ever saw. In Cæsar's case we have deeds. The *Leges Juliæ* passed during his consulship were the very measures the times needed. They struck straight and fearlessly at the abuses which were ruining Rome. We ask, What did the Senate do to redress these evils? They stirred not a finger. What useful measure did Cicero himself pass during his consulship? Not one. On the first day he held office he opposed the Agrarian Law of Rullus without suggesting any modification of it or proposing a better. The nobles, who had grasped the public lands, would tolerate no such measure. Later he actually opposed the Bill for restoring civil rights to the children of those whom Sulla had murdered. This course was doubtless expedient, but it was also shameful. At the very least, those who had thus lost their patrimony should have had their lands restored, or else received an equivalent, even if it were unsafe to permit them to hold offices of State. Facts like these on both sides are unmistakable. Only those contemporaries of Cicero and Cæsar who were blinded by selfish interest or party feeling could fail to read their meaning. Cæsar possessed the

[1] 'Si hæc ita manant ut videntur—feres quod dicam—me Idus Martiæ non delectant. Ille enim nunquam revertisset: nos timor ejus acta confirmare non coegisset, aut . . . ita gratiosi eramus apud illum, quem di mortuum perduint! ut nostræ ætati, quoniam interfecto domino liberi non sumus, non fuerit dominus ille fugiendus. Rubeo, mihi crede. Sed iam scripseram: delere nolui ('Ad Atticum,' xv. 4). I quote from Munro's translation in his 'Catullus,' p. 83.

genius to interpret the movement of his time. He rose, or rather was borne on to supreme power, because, while following, and to some extent guiding, that movement, he aimed not at his own ambitions, but at meeting his country's urgent needs, and creating a new and wider Rome. What ambition he had lay in his consciousness of that genius.

Cæsar was born in 100 B.C., about a year before Lucretius. The poet had witnessed his rise to power from its very beginning. In 60 B.C., when Lucretius was about forty, the first Triumvirate was formed, consisting of Cæsar, Pompey, and Crassus. In 59 Cæsar attained to the consulship, and the *Leges Juliæ* were passed. In 58 he was appointed to the supreme command of both the Gauls. It was a perilous sphere, a task so vast that his enemies hoped he would be lost in it, but probably all the more attractive to him. Both Germany and Transalpine Gaul were again becoming unsettled, and the most serious fears of fresh barbarian invasion had arisen. In 57 B.C. the Senate was compelled, reluctantly, to order a public thanksgiving for his victories over the Helvetii, Ariovistus, and the Belgic Confederacy. In 56 the first Triumvirate was renewed. Lucretius lived to see some of his brilliant victories, which added a vast province to Rome, and displayed both military genius and statesmanship such as the world had never before seen.

As an Epicurean, Lucretius could not fail to have sympathy with the people. But one cannot help wondering which party Lucretius the Roman sympathized with —the Senate or the party of progress ; in what light he regarded

> 'The noblest man
> That ever lived in the tide of times.'

When we consider his literary connection with Cicero, his admiration for an extreme Tory partisan like Memmius, we can hardly avoid surmising that his sympathies were with the Senate. One might even fancy that, when he

warns Memmius that he must not fail of his duty to his country, he must have been writing at the time when Memmius was changing sides. But there is a passage of the poem which appears to refer expressly to Cæsar's military supremacy, so dreaded by the nobles, to whose circle Lucretius almost certainly belonged.

During the last six years of Lucretius's life, while his poem was being written, the Triumvirate was the centre of all men's thoughts, whether for fear or hope. These self-appointed 'regents,' with their legions at their back, held the destiny of Rome in their hands, as all could see. The nobles hated them with a hatred intense in proportion as it was impotent. To Cicero and his friends the authority they assumed could only be explained by a consuming ambition, resting not day nor night till its goal was grasped. Cæsar was felt to be the ablest of the three, and therefore was the most feared.

It is in the light of these facts that we must read Lucretius's brilliant prologue to his second book. He expresses a passion of pity as he looks down from the calm height of philosophy on the vain struggling of ambitious men, to see how they 'wander all abroad and go astray in their search for the path of life, to see the contest of intellect, the rivalry of rank, the striving day after day and night after night to climb to the height of power and to be masters of the world.' All that Nature demands is freedom from care and fear, but neither wealth nor power will deliver them from these, nor yet from sickness. 'Wherefore, since treasures avail nothing in the case of our body, nor yet does noble birth avail, nor the glory of kingly power, we must go on to conclude that to our minds as well these do no service: unless, perhaps, when thou seest thy legions swarm over the plain of Mars, as they wage a mimic war, supported by strong reserves and flanked by mighty force of cavalry, and thou dost marshal them fully equipped in armour, and all animated by one impulse—what avails it all, unless then thou findest that superstitious fears are scared away

and fly panic-stricken from thy mind? Nor does it avail thee aught to see thy fleet swarm forth and spread far and wide over the sea, unless then the fear of death leaves thy breast untenanted and freed from care.

'But,' he continues, 'if we see that such notions are laughable and mere mockeries, and if in sooth the fears of men and their haunting cares dread not the clank of arms nor cruel weapons—if unabashed they mix among kings and lords of the world, and stand in no awe of the gleam of gold nor the sheen of the purple robe—how canst thou doubt that it is wholly the prerogative of reason to banish care and fear, and on this account above all that the whole of our life is a struggle in the dark.'[1]

The ground of the imaginary review is undoubtedly the Campus Martius at Rome. Munro says: 'Cæsar, after his consulship, remained with his army for three months before Rome, and was bitterly attacked by Memmius.'[2] Does Lucretius here allude to Cæsar? During the last five years of Lucretius's life the Triumvirate must have bulked so large on men's horizon that Lucretius's contemporaries could not fail to see in the *rerum potentes* of this passage a reference to the three regents, and to Cæsar in particular. The term 'masters of the world' denotes not merely those holding office in the State,

[1] II. 117 *ff.* I retain Munro's brilliant emendations of ll. 42 and 43.

[2] 'Campi is the Campus Martius; Horace has it eight times in this sense' (Munro on l. 40). Bockemüller thinks that Lucretius, when he appeals to the feelings of a commander-in-chief, refers to Memmius's previous experience in Bithynia, where he maintained the state almost of an Oriental monarch, with command of an army and a fleet, since Bithynia as a frontier-province required a considerable land and sea force. This whole Proœmium, he holds, bears a close application to Memmius, and indicates how great a change has taken place both in the poet's feeling towards him and in Memmius's political aims and ambitions since Book I. was written. 'The ambitious partisan could no longer conceal even from the unsuspicious poet his intention to rise with Cæsar's aid to the highest office' (see his notes on ii. 1-61).

but men who are possessed by a lust of absolute power.[1]

From the point of view of his party, Lucretius could not be expected to see any other explanation of Cæsar's strenuous life and tireless energy than this: 'the striving day after day and night after night to climb to the height of power'—

> 'Certare ingenio, contendere nobilitate,
> Noctes atque dies niti præstante labore
> Ad summas emergere opes rerumque potiri.'

Another passage emphasizes the same points, and seems to refer to the same persons. 'Avarice, too, and the blind lust of honours compel wretched men to overstep the bounds of right, and sometimes, acting as copartners and partakers in crimes, to struggle night and day with surpassing toil to climb to the heights of power.'[2] The

[1] We may compare Cicero's remark about Catiline and his fellows, who aim at nothing less than to seize Italy for themselves. 'Dominationem tamen expectant, rerum potiri volunt' ('Or. in Cat.,' ii. 19).

[2] 'Denique avarities et honorum cæca cupido
Quæ miseros homines cogunt transcendere fines
Juris et interdum, *socios scelerum atque ministros*,
Noctes atque dies niti præstante labore
Ad summas emergere opes, hæc vulnera vitæ
Non minimam partem mortis formidine aluntur.'
iii. 59-64.

(The logic of the passage which follows is extraordinary. 'These wounds of life,' the poet says, 'derive by no means their least nutriment from the dread of death.' But poverty and obscurity are a kind of death in life, and 'therefore' the fear of death is the cause of men's unscrupulous struggle for power and riches!) Sellar has pointed out the close resemblance between the lines quoted in the text and words applied by Cicero to Cæsar: 'Si jam violentior aliqua in re C. Cæsar fuisset, si eum magnitudo contentionis, studium gloriæ, præstans animus, excellens nobilitas aliquo impulisset,' etc. ('In Vatin.,' c. 6.). 'If Cæsar had been rather violent in pursuing any object, if the mighty importance of the struggle—if his eagerness for glory, his pre-eminent spirit, his exalted rank, had carried him away in any respect,' his later mighty exploits might have caused this to be

reference to a 'partnership,' or 'league of crime,' seems, though it may not be so, to refer pointedly to the Triumvirs.

Munro says: 'How much greater even than Cicero's was the industry of Cæsar during the last fifteen years of his life, who during that time went through an amount of work, physical and intellectual, taking quantity and quality, such as mortal man probably never performed before or since! Emperor, minister, generalissimo, lawyer, censor, restorer of lost rights, and creator of new ideas, he was at the same time destroying with his right hand the world that was, and building up in his mind the world that was to be'[1]

A portentous life of toil Cæsar's was! No wonder if its laboriousness alarmed Cicero and amazed Lucretius. A man of genius should have seen deeper into Cæsar's character than to explain it by mere ambition. But an independent view of politics could hardly be expected from any thorough-going Epicurean, and certainly not from an Epicurean who was absorbed in study like Lucretius. His opinions could only reflect those of his own circle. He did not recognize the greatest spirit of his time. He makes a hero of the paltry Memmius, and therefore is on the same side with those who longed to see Cæsar slain. Nothing could be more characteristic of the narrow creed which, like Pietism, bade a man save himself by standing aloof from the press and turmoil of

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forgotten. Cicero's language, doubtless with intention, is ambiguous, but his point of view is the same as that of Lucretius. The lines quoted in the text are, says Sellar, 'certainly more applicable to Cæsar than to any of the poet's contemporaries.' 'Transcendere fines juris, socios scelerum atque ministros' were among the milder charges brought by the Optimates against the Triumvirs. 'Avarities' might be specially aimed at Crassus. Of course no interpretation could be entertained for a moment which sees in these lines chiefly a political allusion. The ethical meaning is here paramount: Lucretius is speaking from his deepest heart. But for the majority of his friends the reference to the Triumvirs would strengthen his warning.

[1] 'On Catullus,' p. 94.

national life, not even caring to know what his fellows were struggling for.

Lucretius's reference to 'the rivalry of rank' (Cicero also emphasizes 'rank' as an active element in Cæsar's ambition) reminds us of one surprising attitude of Cæsar's, to be explained as a desire for popularity and political prestige rather than as a display of human weakness on his part. Always proud of his famous uncle Marius, at the funeral of Marius's widow, Cæsar, as the custom was, delivered a speech, which attracted much notice. In it he claimed to be descended on his father's side from Julus, the son of Æneas, who was the offspring of Venus, and on his mother's side from one of the kings of Rome.[1] Though the enlightened may look down with contempt upon the beliefs of the many, they know when and where to treat them with deference. Cæsar was not now addressing the Senate. Blue Trojan blood, with descent from a goddess and a king, were wind in the sails of a popular candidate. How else explain such a speech coming from such a man?

It may be said that such lines as—

> 'Si non forte tuas legiones per loca Campi
> Fervere cum videas,'

and

> 'Fervere cum videas classem lateque vagari,'

might as well apply to any consul of Rome, the proud commander-in-chief of her armies and fleets. While Lucretius was writing, a would-be consul had no hope of success unless he secured the support of Cæsar at least, and from the standpoint of the nobles, Memmius was now openly allying himself with men of utterly unscrupulous

[1] Suetonius quotes the speech thus: 'Amitæ meæ Juliæ maternum genus ab regibus ortum, paternum cum diis immortalibus conjunctum est. Nam ab Anco Marcio sunt Marcii Reges, quo nomine fuit mater: a Venere Julii, cujus gentis familia est nostra. Est ergo in genere et sanctitas regum qui plurimum inter homines pollent et cærimonia deorum quorum ipsi in potestate sunt reges' ('Julius,' c. 6.).

ambition. And as Memmius was a candidate for the consulship, Lucretius could not well fail to have his ambitions in view in this passage. It does seem to me that Lucretius here uses the Triumvirs, who, he held, had abused their consular power for their own ambitions, as a glaring present-day warning to Memmius, who aspires by their help to succeed to their office. As the prejudices of the day went, he could have used no more telling public instances. The poet's warnings may well have been needed by such a man. But, if Memmius ever read so far on in the poem, no doubt he smiled contemptuously at the advice to prefer luncheon on the bright greensward, studded with flowers, to splendid evening banquets in gorgeous mansions, glittering with silver and gold, and echoing with music.[1] And we may be sure the 'fears of death' or of things after death troubled *him* but little.

As we have seen, from the standpoint of the nobles, which was pretty certainly that of Lucretius, clouds were gathering from all sides round the breaking Republic. In the failing power of the Senate; in the great revolutionary party of which Catiline had made himself the head, and in the sympathy of many of the senators with that party; in the rising might of those traitors, the leaders of the people, who felt their strength, and would not be gainsaid; in the scowling faces of the slave multitudes, the enemy within the State—they saw nothing but portents of a swift-coming tempest which should wreck Rome with a world-chaos to follow. If the outlook of the country on every side was gloomy, not merely from their standpoint, but to all who noted the increasing luxury and the slackening national sense of duty and honour, was there help for men in the temples of the gods whose aid was still so solemnly invoked by the State in every public undertaking? Undoubtedly religious belief was waning everywhere, but specially among the cultured and upper classes. As Lucretius

[1] ii. 24-33.

says: 'Men were wandering hither and thither, and going far astray, groping for the way of life.' The heavens were dark, men had ceased to look upward; the oracles were silent, no prophet or inspired bard spoke to warn or encourage; philosophy was dumb, except where Stoic or Academic echoed the great voices of the past. Stoicism was, indeed, the religion of the more earnest towards the end of the Republic. The Stoic philosopher in his rough cloak even preached to the crowd in the market-place on virtue and duty, and imparted to his disciples counsel in matters of conscience—the last thing which anyone would have asked from Roman priest or augur. Strange anticipations, springing in part from the despised Jews,[1] of some world-crisis, bringing in a new and better age, were already beginning to throb in the remote corners of the Empire,[2] but as yet too vague to find a voice in literature, such as Virgil gave them in his 'Pollio,' where he makes the new era coincide with the expected birth of a wondrous child. In the gloom superstition was bound to flourish and grow luxuriant. All kinds of new worship were being introduced from the East into Rome, which met the religious cravings of the time—cravings growing ever more insistent and disturbing, the anxiety for knowledge as to a life to come and the desire for absolution from guilt. Some of these worships included detestable rites. Most of them offered

[1] Virgil's erudition was enormous, especially in Alexandrian literature. Macrobius ('Sat.,' v. 22) says that he drew matter 'from the most recondite learning of the Greeks.' Nothing forbids him to have been acquainted with the Septuagint. The new Sibylline prophecies, manufactured in the East and now popular in Rome, also reflected Jewish ideas. (See Sellar's 'Virgil,' chap. iv.)

[2] Suetonius, writing of the time of Vespasian (A.D. 70), speaks of this belief as existing from ancient times. 'An ancient and persistent belief had spread over the whole of the East that at that time men should rise from Judæa who should become masters of the world.' 'Percrebuerat Oriente toto vetus et constans opinio esse in fatis ut eo tempore Judæa profecti rerum potirentur' ('Vesp.,' c. 4).

solemn ceremonies of expiation and atonement to those conscience-troubled. 'Even at this day,' says Lucretius, 'the sense of awe implanted in the heart of man by the observances of religion is raising new temples of the gods over the whole earth.'[1] Many who were of an emotional temperament, chiefly the uncultured, found consolation in the various Mysteries,[2] which promised the protection of the gods on earth and happiness in a life to come. Thus the worship of Cybele and that of Mithras, introduced during the first century B.C., contained a solemn rite[3] in which the votary was drenched with the blood of a slain ox, and declared thus to be cleansed and purified from past sins.[4] The Roman religious temperament could adopt such rites from Greece, but could neither originate them nor keep them pure. In Greece the Mysteries had been a familiar institution for centuries before Lucretius. The Eleusinian Mysteries, for example,

[1] 'Unde etiam nunc est mortalibus insitus horror
Qui delubra Deum nova toto suscitat orbi.'
v. 1165-6.

[2] These were numerous, the Orphic, and those of Demeter, Sabazius (or Dionysus), Cybele (or the Magna Mater), Isis, and Mithras being the most popular. The opinion of the cultured was hostile to these foreign rites, and to the wild excitement with which many of them were celebrated. 'Cleansings unclean and purifications impure,' says Plutarch ('On Superstition,' c. 12). The devotees were chiefly slaves or of the lower classes. See Percy Gardner on 'Orgiastic Cults' ('Greek Antiquities,' 1895, p. 212).

[3] Called the Taurobolium. The rite, originally belonging to the worship of Cybele, became specially identified with the worship of Mithras, the Sun-god, the deity of the Cilician pirates. When these were dispersed by Pompey in 67 B.C., their worship spread all over the Empire. It was popular in the army, and altars of Mithras are found even along the Great Wall in Britain. After passing through the rite the votary was said to be 'born again' (*re-natus in æternum*). See Percy Gardner's most interesting chapter on 'Christianity and the Thiasi' ('Exploratio Evangelica,' 1899, pp. 325-345).

[4] The name of a Lucretius occurs among the devotees of Mithras. 'Deo invicto Mithræ C. Lucretius Mnester' (Orelli, No. 1908).

which bore a kind of national character, had no doubt an elevating influence, insisting on purity and on the fact of retribution in a life to come. But even the bright spirit of Hellas could not save such rites from degradation. The aged Cephalus in Plato's 'Republic' tells how 'mendicant priests and prophets go to rich men's doors, and persuade them that they have a power granted to them from the gods of making atonement for their sins or those of their fathers by sacrifices and charms accompanied with pleasures and feastings. . . . And they produce a host of books written by Musæus and Orpheus, according to which they perform their ritual, and persuade not only individuals, but whole cities, that there are atonements and expiations for sin by means of sacrifices and merrymakings[1] while they are alive, and after they are dead that what they call "the Mysteries" deliver us from sufferings in the other world; but if we omit to sacrifice, awful things, they say, await us yonder.'[2] In Rome it would seem as if only the grosser form of such rites spread and throve.[3] The vile plague-spotted company of the priests of Cybele, drawn for us in Apuleius's romance,[4] who gather in by their performances so rich a harvest from the simple and the superstitious, were perhaps only too typical of those religious impostors who lived by trading on men's hopes and fears in Lucretius's day. No wonder that Plato waxes indignant over the moral effect of believing that the unjust man can, while retaining all the gains of his injustice, 'square' the gods and circumvent them by some imposing form of ritual.[5] But men have been known to believe this even in times

[1] We must remember that in Homer the sacrifice is also a jovial banquet.

[2] 'Republic,' pp. 364, 365.

[3] See the ugly story of the treachery of the priests of Isis at Rome, told by Josephus ('Ant.,' xviii., 3, 4). Tiberius instituted a thorough inquiry, ordered the priests to be crucified, the temple to be demolished, and the statue of Isis to be thrown into the Tiber.

[4] 'Metamorphoses' ('The Golden Ass'), bk. viii.

[5] 'Republic,' p. 366.

less remote than the fourth century before Christ. We can imagine the loathing with which Lucretius looked on the rapid spread of such worships in Italy.

Another influence was working powerfully, both below and above the surface, on the age in which Lucretius lived. This was the wide dispersion all over the Empire of the Jews, who always exhibited a strongly missionary spirit. Josephus, writing after Jerusalem fell, proudly claims that the great majority of mankind had for long zealously imitated the Jewish religious customs, and that there was no single city or nation to which the Jewish practice of a Sabbath day of rest and other observances had not spread.[1] Through the Septuagint (Greek) version the Hebrew prophets and poets must have been known for over a century to many educated Romans. Some of the finer spirits, feeling eagerly after light, found in them not only a spiritual conception of God, but also—what paganism now utterly lacked—the promise of some great hope for the world. Sick of augurs and auspices and elaborate State sacrifices, they felt their hearts answer to the prophet's denunciation of the utter futility of mere religious ceremonies. Such men were naturally drawn to become adherents of the Jewish synagogues, which were to be found in Rome and in every great city of the Empire, and which were freely open to strangers. There was in Lucretius's day, spread all over the Empire, a great body of those who had come under Jewish influences, who joined in the synagogue worship, and observed the Jewish laws as to food, hygiene, fasting, and the keeping of the Sabbath.[2] These, like the centurion Cornelius named in the Acts, led by a true instinct, refused to cross the sharp line which separated the Jew from all

[1] 'Contra Apion,' ii. 40.

[2] Philo the Alexandrian, born about 20 B.C., records the enormously widespread influence of the Mosaic laws 'over all nations, both barbarians and Greeks.' in his own day ('Life of Moses,' iv., c. 2). Josephus ('Antiq.,' xiv. 7, 2, xii. 2, 5, xviii. 3, etc.) refers to the lavish gifts of these foreign adherents of Judaism to the Temple at Jerusalem.

other nations, and, while rejecting his debasing slavery to ritual, retained all that was most vital in Jewish religion, along with the best that Greek thinking could teach them. The term 'devout,' or 'they which fear God,' by which they were called or called themselves, expresses a type of character clearly recognized at the time.[1] Stoicism had gone far to form that type. But it was one marked feature of the Epicurean that he closed his eyes to all teaching not of his own sect. Probably Lucretius was blind to the very existence of such a class. Probably he knew nothing whatever of the new religious ideas which were fermenting round him. To Epicureans the Jew was known only in his baser capacities as the *mathematicus* or astrologer, the exorcist,[2] the professor of doubtful arts and worse, who predicted the future and knew the dangerous powers of secret drugs. Of all such impostors the Epicurean was the natural foe. And yet the Jewish Monotheism was even now leavening the whole world of thought, and, though the idea of one Divine power was foreign and repellent to Epicureanism, was destined to coalesce in due time with Lucretius's great conception of law in Nature.

The chief feature of Roman religion in Lucretius's day was the practice of divination and the importance attached to it. This was not performed by the medium of an oracle. In the best days of Greece, when one who was in any emergency of life or conduct and could not see the path of duty went to Delphi or elsewhere, in order to learn the will of Apollo or some other god, and so to receive Divine guidance, he performed a beautiful and

[1] οἱ σεβόμενοι, or οἱ φοβούμενοι, with or without τὸν θεόν. Such men would be attracted towards Judaism partly because of the purity of the Jewish family, which contrasted with the profligacy of Rome. We find even the common soldier ranked among 'the devout' (Acts x. 7). Such adherents to Judaism were more numerous among the Greeks than among the Romans; thus in Thessalonica we hear of 'a great multitude' (Acts xvii. 4).

[2] Thus in Corinth in St. Paul's day certain 'vagabond exorcists' made a business of casting out evil spirits (Acts xix. 23).

deeply sincere act. The Greek soothsayers, who often inherited from father to son their office and their special gift of reading the future, believed profoundly in their power to interpret the will of the gods to men. But in Rome the system of augury had always been a mechanical one, with fixed rules, borrowed largely from Etruscan superstition, for interpreting each phenomenon. In Lucretius's day augury had become a mere system of imposture. The utmost attention was paid to omens. Almost any occurrence, however trivial, if it took place at the outset of an undertaking—a sneeze, a stumble on the road, an animal running across one's path—might be an 'omen,' and no such sign must be neglected. So the diviner was continually had recourse to. Cicero (himself an augur) lifts up his voice against this mental slavery almost as vehemently as does Lucretius. In his treatise 'On Divination,' published shortly after Lucretius's death, he says: 'To speak the truth, superstition has spread over the world, and has crushed the spirits of almost the whole of mankind, and seized the mastery of human weakness. . . . All the roots of human superstition must be plucked up, for it presses upon you, and drives you, and pursues you whichever way you turn—if you hear the words of a diviner or any other omen, if you offer a sacrifice or catch sight of a bird, if you see a Chaldæan or a soothsayer, if it lightens, if it thunders, if anything is struck by lightning, if anything resembling a portent is born or takes place. But one or other of these events cannot fail frequently to occur, so that you can never be at rest and have a tranquil mind. The refuge from all toils and anxieties would seem to be sleep. Yet sleep is the thing from which our cares and terrors mostly come.'[1] And even philosophers of high ability,

[1] 'De Divinatione,' ii. 148, 149. One form of divination was the consulting of the Sibylline books in cases of national emergency. The sacred books were entrusted to a college of fifteen who had office for life. In the case of a disastrous flood of the Tiber in A.D. 14 it was proposed in the Senate to consult these books. Tiberius, however, refused his consent, and appointed

he goes on to say, have laid special stress on the interpretation of dreams. Even a man like the Emperor Augustus used to carry about with him magical remedies in order to avert the dangers of lightning. He was frightened whenever he happened in the morning to put on his left shoe first, and paid the greatest attention to dreams, omens, and lucky or unlucky days.[1]

Men believed that the outer world was the scene of constant Divine interferences. They held, with more or less conviction according to temperament, that every phenomenon of Nature—for example, the failure of harvest, the flooding of a river, the rising up of a head-wind on a voyage—was due to the caprice of one or other offended god. From such a standpoint any knowledge of the laws of Nature, any growth of science, was cut off at the outset. The more honour to Lucretius, who, amid such darkness, held up a clear and steady light.

With this view of the world men lived in fear of the jealousy of gods whom they had offended, they knew not how, and the soothsayers knew well how to profit from their fears. Cowardice, ambition, selfishness, even human love and the sense of duty, could all be worked upon. Well might Cicero and Lucretius wax indignant with the trade whose harvest-field was human ignorance. Cato might well say that he 'wondered how, when one soothsayer met another, he could help laughing.'[2]

Again, as with spiritualism in the present day, magic and necromancy spread among those who had cast off belief. So true is the saying of Novalis, 'Where gods are not, spectres rule.'

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instead two commissioners, who recommended great changes to be made in the course of the Tiber (Tacitus, 'Annals,' i. 76). In Tacitus's opinion Tiberius acted impiously, and no doubt the multitude thought the same. Such rejection of a popular superstition must have created a prejudice, inclining men to credit slanders, and thus must have helped to swell the Emperor's ill-fame.

[1] Suetonius, 'Vita Augusti,' 90-92.

[2] Cicero, 'De Div.,' ii. 52.

The religion of the State had become utterly corrupt. If the nobles, as a class, were wolves who sought to devour their country, the priests were knaves who played into their hands by working on men's superstitious fears. Was any measure which seemed likely to benefit the people being voted on and in danger of being passed, such as an agrarian law, which would compel the nobles to disgorge the public land which they had appropriated, at once an augur was found to say that he had consulted the sky, and that the gods forbade all public business on that day, so that the Assembly must be dissolved. Romans of culture in the upper classes held it was the duty of a Roman magistrate to speak before the people what he himself entirely disbelieved. Romulus, says Cicero, believed that by augury we may foresee the future. 'Antiquity no doubt was deceived in many things, and has had to be corrected by time, by experience, or the spread of knowledge. And yet,' he continues, 'the reverence for augury and the college of augurs and the practice of augury must be kept up on account of the beliefs of the common people and for its great service to the State'[1]—that is to say, for its use in hindering the election of a dangerous (this meaning a popular) candidate, and in order to obstruct the passing of an obnoxious law or to evade an existing one. To Cicero this was a pardonable pretence needed for the vulgar. Much there is to justify Froude's saying that the age of Cicero was an age of cant—'cant moral, cant political, cant religious.'[2] But it is well for the world that there are men like Lucretius, to whom such paltering with truth in the name of God is more than loathsome—it is intolerable. To him the State religion could only appear an organized system of hypocrisy and deceit.

The practice of divination was, indeed, 'the core of the ancient Polytheism.'[3] The common belief was that, if the gods care for men, they cannot fail to send them

[1] 'De Div.,' ii. 33.
[2] 'Cæsar,' chap. i.
[3] So Carlyle calls it in the first of his 'Lectures on Literature.'

signs of their will.[1] That belief was a natural one. Even a Socrates could tolerate it. It was bound up with men's whole thinking, but upon it had been erected a poisonous and deadly theology and ritual, defended by every motive which could work upon human ignorance and fear. Most earnestly Lucretius appeals to the reader of his poem: 'One thing in this task of mine I fear, lest haply thou shouldst fancy that thou art entering upon unholy rudiments of reasoning, and beginning to tread a path of sin.' And again: 'Thou thyself one day mayest be overpowered by the terror-striking words of the seers,[2] and seek to fall away from us.'[3] What a loathing of priestcraft terrorizing the weak and ignorant lies behind these honest words! After Lucretius's magnificently lucid exposition of Epicurean science, no thinking man could any longer believe that events are produced by a network of conflicting Divine activities, mutually jealous, whose action may be foreknown and influenced either to favour or to hurt us by rites and ceremonies. Were it by its effects on the intellect alone, that belief was demoralizing.

The world has seldom seen an era of greater bloodshed and disorder than that of Lucretius's life, 'the unhappy time when the Roman world, in travail with the Empire, was covered with blood and ruins.'[4] During boyhood and youth he must have been familiar with every sight and sound of war and massacre. He had seen innocent men proscribed and dragged to execution, and their

[1] See Cicero, 'On the Laws,' ii. 13.

[2] *Vatum:* the term includes both 'soothsayers' and 'poets.' No doubt Lucretius here has both in view, among the latter especially Homer with his pictures of suffering and happiness in the other world. Epicurus rejected all the poets and, in particular, Homer.

[3] 'Illud in his rebus vereor ne forte rearis
Impia te rationis inire elementa viamque
Indugredi sceleris . . .
Tutemet a nobis jam quovis tempore vatum
Terriloquis victus dictis desciscere quæres.'
i. 80, 102.

[4] Prévost-Paradol, 'Essais,' Second Series, 1863, p. 174.

families murdered. He had seen whole nations exterminated, like the Helvetii beyond the Alps, and in Italy others all but exterminated, like the Samnites and the Etruscans, whose only crime was that they loved liberty too well. He could trace no justice in the world. He had watched men seeking everywhere for the 'way of life,' and, so far as he could judge, seeking in vain. When they cried heavenwards, none but false voices answered them amid the darkness. Is it surprising that at such a time a man with a heart in him found it hard to believe that the gods take any thought for men — gods who allowed a wretch like Sulla to make 'a steaming slaughter-house of Rome,' gods whom apparently no prayers prevailed on to strike down the guilty or to save the innocent? All things then were, indeed, working towards order and progress both in Italy and abroad, but through how seemingly reckless a waste of human suffering! How bewildering, how monstrous a world! There was more true faith in Lucretius's denial of a Divine Providence at such an era than there is in the self-complacent creed of many a modern optimist with whom, if things go well with himself, all is well, and this world the best that can be.

CHAPTER II

THE LIFE OF LUCRETIUS

THERE is almost no poet of whose life we would more gladly know a little than Lucretius. There is so much in his poem which it would explain. What experiences provoked the poet to break so violently with the religion of his day? What is the secret of the tense, electric atmosphere which hangs over the poem? How came it that the pen dropped out of his eager hand with the close of his work full in sight? Almost no period of the world is better known to us than the age in which he lived. The letters and speeches of Cicero reflect that time like some mirror in which we watch the figures of all that pass come and go. Not only the leaders of the age, but many of the lesser men, are known to us intimately. Lucretius was not only one of the most gifted spirits of the time, but as a poet he has made his impress, directly or indirectly, on every succeeding generation.

> 'Here rolls
> The large verse of Lucretius, who raised
> His index-finger and did strike the face
> Of fleeting Time, leaving a scar of thought
> The rain of ages shall not wash away.'

How strange that such a man should have passed through his own age and left almost no trace of himself! Was this his intention? A few details, so brief and tragic that they have given rise to endless controversy, are all we have. Truly Lucretius has fulfilled only too literally that great precept of his master—'Hide thy life.'

Here are the only data we have. Under the year 94 B.C. St. Jerome, in his Chronicle, records the life of the poet thus, evidently condensing some fuller narrative in one clumsy sentence :

'Titus Lucretius, the poet, was born ; afterwards, having been driven mad by a philtre, after he had written, in the intervals of his mental ailment, a number of books which Cicero afterwards corrected, he slew himself by his own hand in his forty-fourth year.'[1]

Did the administering of the philtre precede the writing of the poem, as has been commonly supposed, or did it follow it and precede his suicide ?

Jerome would thus fix the death of Lucretius in the year 50 B.C. This date contradicts the other fact recorded as to the poet. Suetonius, in his Life of Virgil,[2] says that Lucretius died on the day on which Virgil assumed the *toga virilis*, at the age of seventeen, on October 15, 55 B.C.[3] This contradicts by some five years Jerome's statement. The first notice of the poem occurs in a letter of Cicero to his brother, written early in the year 54 B.C., a few months after the poet's death, just at the time when we might expect the poem to begin to attract notice. Suetonius fixes the death of Lucretius so circumstantially that most scholars, following Munro, decide that Lucretius must have been born a few years earlier than Jerome says. 'It appears to me as certain as such a fact can well be,' says Munro, 'that Lucretius was born in the latter part of 99 B.C., or else in the early months of 98 B.C., since in either case he would be in his

[1] 'Titus Lucretius poeta nascitur ; postea amatorio poculo in furorem versus cum aliquot libros per intervalla insaniæ conscripsisset, quos postea Cicero emendavit, propria se manu interfecit anno ætatis XLiiii.'

It is agreed that the source of Jerome's notices of Roman authors was Suetonius.

[2] Professor Nettleship has proved that the Life of Virgil, long attributed to Donatus, is entirely or in very great part the work of Suetonius ('Ancient Lives of Virgil,' 1879).

[3] 'XVii anno natali suo,' which Reifferscheid, followed by most scholars, altered to XV.

forty-fourth year on the Ides of October, 55 B.C.' But since in two other cases Jerome (or his authority, Suetonius) assigns a duration for an author's life which contradicts the dates he assigns for his birth and death, we can hardly feel certain that Lucretius lived forty-four years.[1] One might be inclined to retain both dates (as both probably came from the same source), and to suppose that Lucretius died in or about his fortieth year. In this case Lucretius would be some six years younger than Julius Cæsar, twelve years younger than Cicero, and some seven years older than Catullus.[2]

The statement that Cicero 'corrected' the poem, whatever this may mean, is interesting, as it brings Lucretius into some degree of connection with the great orator. Scholars have assumed that it is meant that Cicero 'edited' the poem. The word *emendavit* naturally means 'corrected,' either orally or in writing. Cicero's criticism may have been limited enough, but, coming from so great a name, Suetonius was bound to record it. The statement might, of course, imply that the unfinished poem was entrusted to Cicero to be published. The doctrines of the poet conflicted so violently with Cicero's own that the latter may well have grudged the labour necessary in order to edit an MS. full of additions which the author had not completely worked in. Lachmann holds that the editor was Quintus Cicero, the orator's younger brother, but we can hardly imagine Jerome denoting by the name 'Cicero' any other than the great orator. Cicero's letter to Quintus, written early in 54 B.C., shows that barely four months after Lucretius's death both brothers had already read his poem, and that the younger had referred to it in a previous letter.[3] He says :

[1] For these errors Suetonius may be chiefly to blame. See *Journal of Philology*, No. 46, 1895, p. 228.

[2] Ellis fixes the birth of Catullus in 87 or 84 B.C.

[3] Cicero's letter 'proves that four months after Lucretius's death both brothers had read the poem, which, as we have said, could not have been published in the author's lifetime' (Munro, edition of 1873, p. 298 ; see the introduction to his critical notes,

'The poems of Lucretius are, as you describe them, marked by great brilliance of genius, but not by much art.'[1]

In the MSS. a 'not' is clearly wanting, which must be supplied before either 'genius' or 'art.' It is provoking to be left uncertain whether Cicero questioned the genius or the art of the poem (he could hardly have denied the former), or whether he allowed Lucretius to possess both genius and art, meaning by the latter 'skill in composition.' But is it likely that Cicero, whose bent is not at all scientific, would have had patience with a poet rehearsing in verse long arguments about the atoms? I fear not. Most probably he admitted the genius, but denied the 'art.' Cicero's bent was too unscientific for him to appreciate the strong grip of principles, the joy in arduous research, and the triumphant grasping of new truth which could make even such a subject a poem.

Certain passages in Cicero evidently refer to the poem. Thus, in a work written ten years after the poem appeared he says: 'I am accustomed often to wonder at the presumption of certain philosophers who admire the knowledge of nature and exultantly give thanks to the Inventor and Founder of it, and worship Him as a God; for they declare that by Him they have been delivered

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pp. 29, 30). If Pontanus's extract on this subject be trustworthy, the earlier books of the poem at all events may have been familiar to the Ciceros long before Lucretius's death.

[1] 'Lucretii pœmata, ut scribis, ita sunt, multis luminibus ingenii, (non) multæ tamen artis: sed cum veneris, virum te putabo, si Salustii Empedoclea legeris, hominem non putabo.' Munro suggests an emendation which clears Cicero of questioning the genius of the poet, 'Multæ tamen artis esse cum inveneris,' thus answering an imputation of Quintus that the poem was lacking in art. Bergk's emendation, 'Si ad umbilicum veneris,' gives the meaning needed. 'If you read the poem right through, I shall think you a man.' 'Si ad finem' would involve less change. Dr. J. S. Reid suggests, '"Sed cum veneris" in Cicero may well be elliptic and stand by itself; "But more of this when I see you." Cicero often, in his letters, breaks off from a subject in this elliptical way.'

from the most grievous tyrants, from a perpetual terror and fear both by night and by day.'[1] It is difficult to imagine that these words can refer to anything else than to certain passages of Lucretius. For Cicero the atomic theory was so identified with atheism that he could not but be prejudiced against a work which expounded a system based on that theory as a veritable gospel for Rome. Yet while Cicero uncompromisingly fought Epicurean doctrines, all the time he maintained a close friendship with many Epicureans, Atticus being one; and Lucretius, too, may have belonged to the outer fringe of the circle.

Some years ago a new Life of Lucretius was found which is throughout singularly independent of Jerome, and contains fresh data, among them an anecdote which I believe to be genuine, and derived from Suetonius.[2] Lucretius,

[1] 'Naturæ cognitionem admirantur ejusque inventori et principi gratias exsultantes agunt eumque venerantur ut Deum: liberatos enim se per eum dicunt gravissimis dominis,' etc. ('Tusc. Disp.,' i. 21). Compare 'Lucr.,' ii. 1090:

> 'Quæ bene cognita si teneas, natura videtur
> Libera continuo, *dominis privata superbis*,' etc.,

and other passages quoted at the beginning of Chapter XV. of the present book. The rest of c. 21 confirms the impression. Compare also Cicero, 'De Finibus,' ii. 31, where it is said of Epicurus, 'Qui innumerabiles mundos infinitasque regiones quarum nulla esset ora, nulla extremitas, mente peragravisset,' with Lucretius's 'Atque omne immensum peragravit mente animoque' (i. 74).

Professor J. S. Reid remarks: 'In considering the relation of Cicero to Lucretius, there is one striking fact which is generally overlooked. Repeatedly he speaks of the works of Amafinius, Catius, and Rabirius as though they alone had tried to represent Greek philosophy in the Latin tongue, before he himself undertook to interpret it to the Roman world. Why did he in these passages ignore Lucretius? Partly, I think, because (most likely in common with most cultivated Romans of the time) he did not believe that the 'new singers' would ever have a large audience, partly because he regarded verse as a bad vehicle for the purpose.'

[2] The anecdote comes down to us on the authority of Pontanus, a well-known Latin poet. He was a diligent student of MSS. to whom we owe the discovery of several treatises, and a scholar who did much for the text of Lucretius. See Appendix A.

it is said, 'used to show the books of the poem as they were written to Cicero, and to pay heed to his criticism. In the course of reading he was sometimes advised by him to observe modesty in the use of metaphors, of which two instances in particular are quoted—"the abysses of Neptune" and "the caverns of the heaven."'[1]

The author anonymously quoted here is probably Varro, from whose 'De Poetis Latinis' Ritschl thinks that most of the details of literary criticism in Suetonius are derived. Only once, however, does Suetonius quote him by name.[2]

One cannot help wondering what Cicero thought of Lucretius's poem. Its matter we know that he disapproved. But what of its style? That he could only have approved partially. It is, indeed, the antipodes of his own. What would Boileau have said of Victor Hugo's poetry?

The criticism attributed to Cicero is curiously and circumstantially confirmed by what we know both as to Cicero's taste in poetry and as to the changes which his standard underwent between youth and later life. In his youth Cicero translated into spirited verse a poem of Aratus (one of the Alexandrian school) on the signs of the weather. Doubtless Cicero then admired Aratus, but his feeling towards that school of poets greatly altered later. The style of his early youth, especially in writing verse, is often not that approved by the grown man. Lucretius was so deeply influenced by this work of Cicero's that he has frequently imitated it. 'The many imitations we find in Lucretius,' says Munro, 'of the few hundred extant lines of Cicero's "Aratea" prove, little as it might be expected, that he looked upon this translation as one of his poetical models.'[3] It would be only natural

[1] 'Ciceroni recentia ostendebat carmina, ejus limam secutus a quo inter legendum aliquando admonitus ut in translationibus servaret verecundiam, ex quibus duo potissimum loci referuntur, neptuni lacunas et cæli cavernas.'

[2] In his Life of Terence.

[3] P. 305. See passages cited by him on Lucr. v. 619.

that Lucretius should seek the friendship and ask for the criticism of the great statesman and orator[1] whose verses had so caught his boyish fancy, who was a hearty patron of literature, and also a lifelong student of Epicurean doctrines—who had, moreover, in the inmost circle of his friends, many Epicureans. As it happens in Cicero's poem, there occurs the phrase 'cæli cavernas' ('the caverns of the heaven'), which Cicero is said to have criticized.[2] In his mature life Cicero had come to disapprove of the artificial school of poetry to which Aratus belonged. Perhaps he regretted having helped to introduce it to Roman readers. He applied to it a contemptuous phrase, 'the bards of Euphorion,'[3] which has stuck fast to it ever since. Cicero's dislike to the school of Aratus, with its laboured diction, must have made him sensitive to any use of language which seemed to him strained or new-fangled,[4] as an affectation immediately dangerous to Latin style. Lucretius's poem must have been in Cicero's eyes not only a godless work, but in style and manner a glaring novelty to which he found it hard to adapt himself. The two metaphors criticized remind us of Victor Hugo or of

[1] The words *postea emendavit* in Jerome distinctly imply that Cicero corrected the poem after the death of Lucretius, whereas this *Vita* lays stress on the criticism occurring during Lucretius's lifetime. Cicero may have revised the poem, more or less, in both cases, and both would then be mentioned by Suetonius.

[2] Varro may have used the phrase before him. See Munro on Lucr. iv. 171.

[3] 'Cantores Euphorionis,' referring to his many Roman imitators ('Tusc. Disp.,' iii. 19).

[4] The word *lacuna* (or *lucuna*) seems to have denoted a small hollow, either filled with water or empty (late writers use it of 'a dimple' on the face). But Lucretius seems to have vastly enlarged its meaning to denote a 'gulf,' either of water or of unknown space. Cicero may have been thinking of the line referring to the destiny of the soul after death, 'An tenebras Orci visat vastasque lacunas' (i. 116), or of v. 794, iii. 1031, 'de salsis lacunis,' of the sea. Repeatedly Lucretius uses it of the vast waters below the earth, as at vi. 538. This startling reapplication of a word in absolutely new associations is what Cicero seems to have objected to. See Appendix A.

Browning; and Cicero, we feel sure, would not have approved of them.[1]

The criticism attributed to him coincides very remarkably, not merely in expression, but in spirit, with the rules laid down by him in the 'De Oratore.'[2] 'A metaphor,' Cicero here says, 'must not burst upon us violently, like a stranger rushing in, but must be introduced modestly, and as if leave were obtained.' An able Dutch critic, Dr. Woltjer, writes: 'Who will believe that Cicero found fault with the metaphor "*cæli cavernas*," when he himself wrote "*late cæli lustrare cavernas*"?[3]—

'Range far and wide the caverns of the heaven.'

'Who can believe,' we may reply, 'that Cicero (at 'De Oratore,' iii. 40) could lay down the rule to avoid anything like a bold metaphor, giving for an example Ennius's "mighty arches of heaven," and yet himself have written "Cæli cavernæ, ætheris cavernæ"?' So flagrantly has Cicero violated his own rules!

In the passage from 'De Oratore,' written at the age of fifty, Cicero blames Ennius's phrase:

'Cæli ingentes fornices,'

because there can be no similarity between a globe and an arch. With so different eyes sees the man of fifty from the youth of twenty!

There has been some controversy as to the genuineness of this anecdote, chiefly on the part of those who forget Cicero's reaction from his early literary idols. The

[1] 'Cicero is not to be ranked among the poets of Rome. . . . That he had no true poetic faculty is shown by the indifference with which he regarded the works of the two great poets of his time' (Sellar).

[2] 'Etenim verecunda debet esse translatio ut deducta esse in alienum locum, non inrupisse atque ut precario non vi venisse videatur' ('De Oratore,' iii. 40-41). Again, in his Orator, he says: 'Ergo ille tenuis (orator) modo sit elegans nec in faciendis verbis erit audax et in transferendis verecundus et parcus in priscis,' (c. 24).

[3] In *Mnemosyne*, 1895, part ii. The line of Cicero is 'Aratea,' 252.

remark put in Cicero's mouth is given as a quotation. In Pontanus's day it could not be known with precision, but, since Ritschl, it has been admitted that Suetonius's literary criticisms are chiefly borrowed. Yet the forger, if he were such, has been shrewd enough to introduce his fictitious criticism *as a quotation*. A good deal of 'faith' is needed to credit this.

Cicero's criticism is one which, from its intrinsic interest, is likely to have been quoted by a grammarian, perhaps in an abridged form.[1] One of the phrases said to have been censured by the orator does not occur in the same form in Lucretius's poem. Dr. Woltjer thinks this a strong argument for believing the criticism and the whole of Borgius's data to be 'the mere invention of a humanist.' That is to say, he holds that a forger would have the daring to support his statement by inventing a phrase nowhere found in Lucretius's poem. Nothing could be less likely. It is just in such unexpected turns as this that truth often differs from deliberate invention, which does not exert itself to fabricate an apparent improbability.[2]

The highest living authority on Cicero, Professor J. S. Reid, after reviewing the discussion, says :

'I can only say again that in my opinion no Renaissance scholar could have invented the story about Cicero. The fact that "Neptuni lacunas" does not occur in the extant text of Lucretius and that "cæli cavernæ" is found

[1] When we compare the line or two given by Jerome to Virgil or Terence or Horace with Suetonius's lives of those poets which are preserved, we see that Jerome's single sentence about Lucretius must represent a pretty long biography in Suetonius.

[2] This is not the only fragment attributed to Lucretius, which is not in his poem. In his note on vi. 840, Munro says: 'Lachmann has proved that a new leaf, the 142nd, of the archetype began here ; in all probability, then, one leaf has dropped out in this place.' Lachmann inserts in the gap four fragments, the first being 'Non mihi si linguæ centum sint oraque centum, Ærea vox.' But why not insert the first line also of this passage, as Pontanus quotes it, at the end of his preface ? Servius (on Georgic ii. 42) also assigns these lines to Lucretius.

in the "Aratea" of Cicero would be quite enough to deter a scholar from giving these illustrations as the two chief examples—"duo potissimum"—and considering how Cicero in later life criticized his own early work, there is nothing surprising in his objection to "cæli cavernæ." '

It is not surprising that a critic like Mr. Andrew Lang, accustomed to weigh literary evidence, should write regarding this criticism put in Cicero's mouth: 'I do not think forgery probable.'[1] In fact, it has too much breadth and simplicity to have come from a forger's brain. A Sainte-Beuve, familiar with both his Cicero and his Lucretius, might have hit upon it, but not a mere scholar, straining himself to invent something new. How difficult for such a man to set to work to enlarge Jerome's scanty data without slipping into some contradiction or absurdity. We have here not mere inference or amplification, but a parallel résumé to Jerome's, from the original source, and containing something which Jerome does not tell us.[2] When we compare this life with other lives of Latin authors which have unquestionably been elaborated by humanists, what difference appears? One essential one, I think. It is not full of criticism and argument or amplification, as they are.[3] Again, why did a deliberate 'inventor' leave alone the philtre story? Here was a field for something new. The humanist who invented the other details and coloured them up *tanta cum fiducia*—'with so much assurance,' as Dr. Woltjer puts it—would not have given so tame a version of the love-potion. Why did not this romancist of Sæc. XV. improve his opportunity better?

[1] In a letter dated February 15, 1905.

[2] For example, '*Recentia* carmina ostendebat.' Borgius does not supplement his account of Lucretius from Jerome's where the former is less full—*e.g.*, as to the *intervalla insaniæ*. Borgius's life is, indeed, remarkably independent of Jerome, even in language.

[3] The reference to Hortensius is an exception. Yet is it not Suetonius's manner to connect one great man with another in any way he can?

A student and thinker is apt to render hero-worship to a great statesman and man of action, though it looks as if such a feeling requires to be enhanced by personal intercourse and friendship before Cicero's verses could have taken such a hold of Lucretius. No doubt Lucretius admired Cicero's wondrous eloquence, but such admiration is frequently not reciprocal. The differences of bent and opinion between them were so profound as to amount almost to antagonism. Were it for nothing but Epicurus's 'political quietism' we can easily imagine Cicero calling the 'De Rerum Natura' an 'un-Roman' book. Even in point of style we must remember that, while Cicero and Lucretius were both masters of expression, each was so in a very different sense.

Jerome's story of Lucretius's life has been looked on by various of the learned with some suspicion.[1]

When we inquire 'Why?' only one reason is given: 'The story is too wild and tragic.' It is one marked bias of the scholar to be sceptical as to any recorded event which is not conventional or commonplace, anything which transcends the experience of the persons among whom he moves. In the last decade of the nineteenth century such a subject as the life of Lucretius was too tempting to escape the attentions of the 'Higher Criticism.' Thus Giacomo Giri, in a pamphlet published in 1895,[2] maintains that the story of the philtre and the suicide are mere inventions. The legend, he thinks, simply

[1] Even a scholar like Brieger asserts that 'Jerome's notice carries no authority whatever,' unless it be the fact of Cicero's revision of the poem; that his details about Lucretius were not derived from Suetonius; and that Suetonius said nothing about the philtre and the poet's suicide. His only argument for this statement is that Arnobius, and also Lactantius (even when he contrasts the suicide of Democritus with the death of Christian martyrs), never refer to these reports. Surely the argument *ex silentio* has seldom been more strongly pressed. How is it that Jerome went to Suetonius for the lives of other authors, but to some worthless source for that of Lucretius? (See *Classical Review*, June, 1898, pp. 237-244.)

[2] 'Il Suicidio di T. Lucrezio,' Palermo, 1895.

sprang up out of the profound impression produced on the mind by those passages of the poem dealing with love, and still more by those on eternal death, since, as he says, 'it is well known that the human imagination creates legends when it is deeply moved.' Thus arose what he calls 'The Legend of Lucretius.' Giri forgets that the 'De Rerum Natura,' owing to its subject and its difficulty, could never have been popular. It was a book for the cultured, whose minds are not the soil in which such legends spring up. Great scholars such as Lachmann and Munro have seen no reason for not accepting Jerome's account as a record of facts, even if somewhat distorted. Lachmann says: 'I find nothing whatever in Jerome's account which cannot be believed.'

A noted Italian scholar, Ettore Stampini, has lately discussed Jerome's narrative.[1] He has thrown fresh light on the details, worn threadbare in the course of long controversy. His theory makes them now for the first time coherent and consistent with the evidence of the poem, and it at least deserves to be set forth. Jerome mentions three facts: The first is the philtre administered to the poet; the second is his madness, with intervals of quiet and mental clearness; the third is his suicide. 'I maintain,' says Stampini, 'that no one of these facts can be reasonably judged to be without foundation, not even the first, although it may be differently explained, as may be seen further on. I maintain, besides, that if error there was, as I believe, on the part of St. Jerome, it lay merely in his abridging the account of Suetonius too concisely, and in not distinguishing with the needful clearness and precision the order and character of the facts.'[2]

[1] 'Il Suicidio di Lucrezio,' Messina, 1896.

[2] As to Jerome's abridgments, Professor J. S. Reid remarks: 'He says he made his excerpts from Suetonius *curiosissime*. But how careless he is in the notice of Lucretius! "Lucretius was born. *Afterwards* he was driven mad by a love-potion." The *postea* was all right in Suetonius, but Jerome ought to have struck it out.'

The philtre might well have produced the unnatural excitement which led to the poet's suicide, but Stampini believes the real cause of that act to lie much farther back. It is to be found in an organic illness from which he suffered. 'St. Jerome, in compiling, has confused and made into one the two facts which were doubtless distinct in Suetonius; but he has not so confused them that the truth cannot be discerned.' Thus Jerome uses one word, *insania*,[1] to describe the madness in the intervals of which Lucretius composed his immortal work, and another, *furor*, to describe the fearful derangement of the nervous system produced by the potion.

Stampini sees in the poem itself evidence of some kind and degree of mental disorder. Giussani holds that the composition of the poem shows not merely that the poet did not work consecutively, but also that he 'frequently treated individual parts of his subject separately, as if each stood by itself, without for the time being troubling himself about all the necessary connections with the rest of the poem.' Giussani also sees something strange in his habit of recasting paragraphs already written, and of making additions, such sketches in either case being still merely provisional, and also in his fondness for repeating certain verses or groups of verses, or even certain expressions and formulæ.[2] Stampini quotes this passage with approval, adding: 'In short, it is a question of an

[1] *Insania*, in the meaning of 'senselessness,' 'extravagance of behaviour,' is often applied to unreasonable conduct of any kind. Thus Cicero says: 'His rebus mentem vacuam [he has just said that philosophy regards the foolish and thoughtless as insane] appellarunt insaniam'; and again, 'Qui ita sit adfectus, eum dominum esse rerum suarum vetant duodecim tabulæ: itaque non est scriptum, *si insanus*, sed *si furiosus escit*;' and even 'furor in sapientem cadere potest, non potest insania ('Tusc. Qu.,' iii. 5, 11).' It may be pointed out that, while Cicero often uses the words *furor* and *dementia* of Catiline in Orations I. and II., he never uses the word *insania*. It is too weak for him. Of course such a distinction must not be pressed too hard.

[2] Rivista di fil., vol. xxiii., p. 427. See also his edition, vol. ii., Turin, 1896, pp. vii., viii.

entirely abnormal mode of composition, of workmanship by fits and starts, disconnected, confused, which, if we grant the physical and psychical ailment mentioned by Jerome, is easily understood, but which becomes almost inexplicable if this cause is removed.'

I believe Sellar is far nearer the truth when he writes: 'The supposition that the poem, or any considerable portion of it, was written in the lucid intervals of derangement seems hardly consistent with the evidence of the supreme control of reason through all its processes of thought.' After all, is the disordered state of the poem anything more than we ought to expect from the fact that the poet's hand was suddenly stopped?—for he breaks off in the middle of a sentence, while describing the horrors of the plague of Athens. Probably he had only two or three hundred more lines to write, but he had given nothing like a final revision to certain parts of his work.[1] No great poem, if arrested at such a stage, could fail to show similar passages—two versions of the same subject both retained, because the poet had not yet chosen between them; other passages added in the margin, and not yet fitted into their place. Especially with such a monstrously difficult subject as Lucretius handles (comprising Epicurus's whole system, with special stress on his physics) might this be expected to occur.

There is not the least reason to regard the frequent repetitions in Lucretius as abnormal or as suggesting a mental state other than sane. Such repetitions are common in Empedocles, whose poem 'On Nature' Lucretius, no doubt, looked upon as largely his poetical model.

On the other hand, no one who has ever come under the spell of Lucretius can have failed to be impressed by the unbroken and, one might say, hardly natural tension of thought and feeling in the poem. Sellar has justly

[1] This becomes strikingly clear when we compare these with passages which are highly finished, such as the introductions to the first three books.

said that this feature indicates 'an excessive strain of faculty' which might well have produced 'the loss or eclipse of intellectual power.'[1]

Stampini believes that Lucretius suffered from 'intermittent insanity' (*pazzia alternante*), in the same way as did Tasso, who was subject from time to time to violent accesses of mental disorder, but that in the intervals he was able to write both poetry and philosophy. 'I dare not positively state,' says he, 'that Lucretius was epileptic, but everything leads to the persuasion that the diseased state of mind of which there is an account in St. Jerome was, or approached to, a form of epilepsy —one of those forms which do not exclude great intellectual power, although with a disturbance of the balance of the different faculties. . . . According to my hypothesis, it was a kind of epilepsy in which maniacal acts, mental exaltation, and painful hallucinations alternated with periods of extraordinarily active power of thought—in fact, of all those psychical facts which concur in the elaboration of what is at once a great philosophical, artistic, and poetical work.' He points out that Cæsar, Mahomet, Napoleon I., were all epileptics, while Victor Hugo even wrote some of his most magnificent pages after violent attacks of epilepsy.

Repeatedly Lucretius speaks of dreadful visions, recurring frequently, not only in sleep, but also while awake. This seems to confirm what we are told of his being subject to periods of mental disturbance of some kind. In one passage referring to the 'images' which all bodies send off, he says: 'These images fly to and fro through the air, and strike terror into our souls when we are wide awake as well as in sleep, when many a time we behold wondrous figures and phantoms of those who see the light no more, which appearances often startle us in appalling wise when we lie overcome with deep

[1] Sellar even admits, in a very guarded way, that the later books show traces 'of some failure in Lucretius's power of organizing his materials.' 'Roman Poets of the Republic,' 1881, p. 278.

sleep.'[1] This passage has been misunderstood.[2] It requires to be interpreted by another, where Lucretius promises to explain 'what that is which encounters us and scares our minds when we are wide awake, if we are under the influence of disease, and scares us, too, when buried in sleep, so that we seem to see and hear face to face those who are dead and gone, whose bones the earth holds in its embrace.'[3] Evidently the poet intends to connect such visions with illness. Delirium is a symptom which is said sometimes (as in typhoid fever) to last long after

[1] 'Atque eadem nobis vigilantibus obvia mentes
Terrificant atque in somnis, cum sæpe figuras
Contuimur miras simulacraque luce carentum,
Quæ nos horrifice languentis sæpe sopore
Excierunt.'
iv. 33.

[2] By Stampini and others.

[3] 'Et quæ res nobis, vigilantibus obvia, mentes
Terrificet morbo adfectis somnoque sepultis,
Cernere uti videamur eos audireque coram
Morte obita quorum tellus amplectitur ossa.'
i. 132.

It is clear that, as Munro points out, 'vigilantibus' and 'morbo adfectis' are in apposition. In both passages the terrifying dreams are referred to as occurring during deep sleep—'somno sepultis, somno languentis.'

For certain temperaments the occasional seeing of visions, while free from any illness, would form no positive proof of insanity. David Masson says of Shelley: 'The morbid, nervous excitement induced by such a life as his had begun to manifest itself in that abnormal action of the senses which makes men subject to visions, apparitions, and the terrors of waking dreams' ('Wordsworth, Shelley,' etc., 1894, p. 118). Thus, looking over the sea by moonlight from the terrace at Lerici along with his friend Captain Williams, he sees 'a naked child rise from the sea and clap its hands as if in joy, smiling at him.' Anyone familiar with Shelley's poetry and the flood of images that always accompanies his thought, and sometimes sweeps his thought before it, must feel that it would take but little stress of circumstance actually to visualize before the poet's eye of sense such a vision as this. In a mind like his no great pressure would at any time be needed in order to heighten mental images into images actually seen. But in Lucretius intellect and imagination were far more evenly balanced than in Shelley.

the other symptoms of disease have disappeared. The lives of the early saints and hermits relate countless visions due solely to long fasting. It is well known that long residence in malarial districts, such as India or parts of Italy, exhausts the brain, and thus produces a tendency to see apparitions. Therefore, Lucretius's reference to such visions does not necessarily imply insanity. Indeed, the acute distinction which he draws as to the influence of disease in causing such hallucinations is inconsistent with any mental derangement. The emphasizing of the frequency of such appalling dreams or visions by the repeated word 'often' suggests a highly nervous and overstrung temperament. How much more vivid are our dreams than anything we can call up before our minds in waking hours! How much every faculty seems exalted and heightened, so that we reproduce or create the very words and gestures and expression of those we know, although when our waking intellect commands it, no such true or lifelike pictures can we call up. If this be the case with ordinary men, how much more vividly would a crowd of phantom-images start up when the wondrous imagination of a Lucretius ran riot in dreams, or when his faculties were abnormally excited by the fever which often accompanies illness. Were opium or haschisch known as stimulants in Italy at this date? If so, the temperament of the poet might incline him towards them. Is it necessary to suppose that Lucretius was subject to epilepsy? Melancholia or merely severe nervous depression would have been likely, even more than epilepsy, to produce on observers the impression of *insania*. Such periods of depression are more consistent, moreover, with the evidence of the poem.

As to the philtre, it must be remembered that at Rome in the last days of the Republic sorcery was exceedingly in vogue, and in particular 'the belief in the power of love-charms was extraordinarily widespread among women.'[1]

[1] See Friedländer, 'History of Roman Morals from the Time of Augustus,' part i., p. 509, Leipzig, 1888.

According to the section of the 'Lex Cornelia' dealing with assassination and poisoning, the statutory penalty at Rome for administering a love-potion (*amatorium poculum*) was, according to the rank of the offender, either the mines or banishment to an island with a heavy fine. If the result were fatal, the punishment was death.[1] Quintilian even proposes an action brought in consequence of administering a philtre as a subject for discussion in the schools of rhetoric. Later we find Suetonius recording that the Emperor Caligula was generally believed to have suffered from the effects of a philtre administered to him by his wife, Cæsonia, which produced madness.[2] Juvenal, in his terrible sixth Satire, quotes the case of Caligula as an authentic and admitted instance of the ruinous effects of such potions:

'Thence comes a darkness o'erspreading the mind, and deep forgetfulness of the business which thou hast but now been engaged on: yet this were tolerable if thou dost not begin also to rave outright like Nero's uncle, to whom Cæsonia administered the whole comb of a cock.'[3]

[1] 'Jurisprudentiæ Ante-Justinianæ quæ supersunt,' ed. Huschke, Leipzig, 1886, p. 551.

[2] 'Creditur potionatus a Cæsonia uxore amatorio quidem medicamento, sed quod in furorem verterit. Incitabatur insomnia maxime: neque enim plus quam tribus nocturnis horis quiescebat ac ne iis quidem placida quiete, sed pavida miris rerum imaginibus' (Suet., c. 50). Munro points out the similarity of these symptoms to the visions described by Lucretius:

'Cum sæpe figuras
Contuimur miras.'

[3] 'Hic Thessala vendit
Philtra.... Quod desipis, inde est,
Inde animi caligo et magna oblivio rerum
Quas modo gessisti, tamen hoc tolerabile, si non
Et furere incipias ut avunculus ille Neronis
Cui totam tremuli frontem Cæsonia pulli
Infudit.'

Juv., vi. 610.

The *frons pulli* is still administered for the same purpose in India, where philtres are said, not unfrequently, to cause madness. Dr. Dupouy, in his interesting volume, 'Médecine et Mœurs de

These potions were compounded from herbs, gums, and various monstrous ingredients. The naturalist Pliny mentions many herbs and parts of certain animals as possessing such a power. Dr. Dupouy suggests that in ancient times certain individuals, such as the sibyls and the priests, may have known the power of certain herbs 'to work on the imagination and the nervous system.' Thus, the philtres may have contained elements which 'disposed the mind to illusions and hallucinations. . . . Evidently poisonous herbs were employed : white, yellow, or black henbane, hemlock, and stramonium ; it is not for nothing that the last is called "the sorcerer's herb." ' We have given evidence enough to prove that the use of philtres was no mere stage-trick of the poets, but a very serious and disastrous reality in ordinary life in Lucretius's time.[1] Their effect often was to produce mental alienation, more or less serious, complicated, and lasting. It is certain that several of the herbs mentioned by Dr. Dupouy produce hallucinations and violent delirium which might prompt to suicide. Regarding stramonium, it is said that where death does not follow on a poisonous dose, it then produces 'prolonged mania.'[2] Probably, if the administration of the drug in lesser quantities were continued, this might also tend to produce a chronic affection of the brain.[3]

There is ample room for the imagination in inventing a plot for the tragedy of the philtre—a sad and repellent story, whatever may have been the motive which prompted the deed. Yet the death of a noted English

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l'Ancienne Rome d'après les Poètes Latins' (Paris, 1885), referring to the power Juvenal attributes to these 'Thessala philtra' to 'dull the intellect and destroy the memory,' asks, 'Might not this Thessalian love-philtre be a mixture, with a base of opium [or haschisch] ? This is not impossible' (pp. 108, 278).

[1] Many other contemporary references to the practice are quoted by Stampini (p. 27 *ff*).

[2] 'Un état maniaque persistant.' The authority from which I quote is 'Les Plantes Médicinales,' by MM. Dujardin Beaumetz and E. Égasse, Paris, 1889, p. 235.

[3] The opinion of two physiologists is given in the Appendix.

man of science a few years ago reminds us how innocent an act might give occasion for such a report.

Apart from all outside records, we have in Lucretius's poem very weighty evidence regarding the poet himself. Doubtless that testimony can only be interpreted and judged of by those who have long and lovingly studied the poem, but here we have evidence which cannot be shaken. In the poem we have certain tokens of a mind habitually too high strung, of a nature dwelling too much within itself, of isolation from ordinary interests—in short, of various abnormal conditions, all of which point, not only to a keenly sensitive temperament, but to some serious and probably long-lasting nervous or mental disturbance.

One cannot read Lucretius without feeling that he has very largely lost interest in life : he suffers from what medical science calls *tædium vitæ*. This may have been due to prolonged illness, to disappointments or repeated blows of one kind or another. And we must remember that, as physiologists tell us, this ' weariness of living ' is a real cerebral ailment which produces ' a diseased modification of the consciousness and the feelings.' Lucretius closes his third book with a vivid picture of one who suffers thus. The Roman noble, weary of himself, sick of the city and his great mansion there, rides out in headlong haste to his country-seat, but the moment he reaches it, he finds the same intolerable oppression return : he can only forget himself in sleep, or even hastens back to Rome. So it is, he says, with us all : a heavy burden weighs our spirits down ; it is, whether we recognize it or not, the fear of death ; from that oppression, change our scene or occupation as we may, we cannot escape.

' Just as men are observed to be conscious that a load is on their mind which wearies them out with its burden, if only they had, in addition, the skill to discern from what causes that burden comes, and whence such a pile of trouble lies heavy on their breast, they would not spend their life as now we see them for the most part do, not knowing what any of them wishes for himself and always

seeking change of scene, as if thereby he might lay his burden down. The man yonder who is sick of home often goes forth from his mansion, and as suddenly comes back again, because he finds that he is no whit better off away from home. He races to his country-house, driving his swift Gallic jennets at headlong haste, as if his home were in a blaze, and he were hurrying to bring help. The moment he reaches the threshold of his villa, he yawns or sinks heavily into sleep and seeks forgetfulness, or even hastens back to the town he left. 'Tis thus each man flees from himself (but self, we may be sure, as the way of men is, he is not able to escape ; it clings to him in his own despite) ; yes, and he hates himself too, because, sick as he is, he knows not the cause of his disease.

' If he could rightly see this,' Lucretius continues, ' each man would put aside all his own affairs, and set his heart first of all to learn the nature of things '—this meaning, he explains, to know that life is but an hour compared with the everlasting nothingness ;[1] and thus, he would fain teach us, may we learn to cast away all fear of death.[2]

A burden does, indeed, as Lucretius rightly saw, oppress the heart of man ; but the disease, it is to be feared, goes deeper than his cure reaches. It is difficult to read this passage—so intense is the gloom of the picture—without feeling that Lucretius had himself experienced the world-weariness which he describes. The advice to ' *put all else behind, and first of all set our heart to learn the nature of things*,' comes from his own heart, taught by his own experience :

> ' Jam rebus quisque relictis
> Naturam primum studeat cognoscere rerum.'[3]

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[1] With slight radical change, one hears almost the same contrast from those who use the name of religion in order to depreciate the present life in contrast with ' eternity.'

[2] iii. 1053-1075.

[3] But when Stampini asserts that the earnestness with which Lucretius catches hold of Epicurus's system and ' scheme of salvation ' *of itself* proves ' a profound disgust of the world,' he goes too far. The Epicureans were conspicuous as a sect for their

Lucretius has, indeed, by help of Epicurus, cast out fear from his life. But at what a cost! His whole horizon of being contracted and drawn in, his highest instincts crushed by the iron fetters of his system, his aspirations and hopes forbidden to range in a 'grand Perhaps'[1]—may not this be too high a price to pay in order to escape from fear? One thing is certain: he did not thereby attain to Peace.

Yet the passion to help others remained and burned strong within him; it aided the love of Nature to save his soul alive. It is at present the fashion to explain all peculiarities of temperament from physical causes, often justly. But in the case of Lucretius it seems to me that the causes are to be sought even more in the spirit than in the body. When we find Byron exclaiming, long before middle age,

'My days are in the yellow leaf,'

and lamenting that the whole world is stale and intolerable to him, or when we read Ecclesiastes, with its burden ever recurring—'All is vanity,' we do not infer that these writers were the subjects of severe nervous disease or show a tendency to insanity, but we rather, merely by instinct, correlate such utterances with what we know of

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enthusiastic discipleship. Every great religious teacher has had an equally enthusiastic belief in his own doctrine, yet in most cases without finding life lose its savour.

[1] The phrase is said to have been uttered by Rabelais on his deathbed—'Je vais chercher un grand peut-être.' That saying implies in it the difference—a great one—between Lucretius and Rabelais. Yet they had much in common. Both hated with their whole hearts the superstition of their day; both profoundly revered the grandeur of the order of Nature. Of the two men, Rabelais showed far the greater daring. How gladly would the monks have burned him as an offering of sweet savour to their God as they had burned his friend Étienne Dolet! We know how they attempted to immure him for life *in Pace*, because Greek books were found in his cell; we know how he sorrowed over forty lost years of his life, spent in the monastery, breathing an atmosphere how debased every chapter of his book tells. In Lucretius's time 'religion' was at all events less cruel than the foul thing which assumed this name in Rabelais' day.

their mode of life and guiding principles of conduct. In a poem like the 'De Rerum Natura,' which is a genuine record of human experience, as direct and sincere, if on certain sides less profound than Bunyan's great prose-poem, the poet's own history cannot fail to utter itself. In order to read it aright we must study his work to the end, searchingly and in the full light of that system to which he gave such absolute allegiance that he hardly dared think without its sanction—a system of such strange opposites which blends the noblest ethics with the lowest!

Thus, the evidence of the poem contains nothing to contradict Jerome's account that the poet suffered from some lasting ailment affecting his nerves and spirits, and that he ended his life by suicide. Rather does its evidence tend towards confirming these reports. Such a nature as it reveals to us would be ill fitted to sustain the strain of any untoward experience or the shock of a sudden blow.

We are now in a position to judge of Stampini's explanation of Jerome's confused narrative. By simply transposing a clause he would clearly distinguish the order of the two facts—viz., the *insania,* or prolonged nervous ailment, from which the poet suffered, and the *furor,* 'the intense and unnatural excitement produced by the potion,' which was the true cause of the poet's suicide. 'Jerome,' says Stampini, 'would have somewhat better expressed the historical truth had he condensed Suetonius's narrative thus:

'"Afterwards, when during the intervals of his nervous ailment he had written a number of books which were afterwards corrected by Cicero, he was driven into madness in consequence, as was believed, of a philtre, and slew himself by his own hand at the age of forty-four."'[1]

[1] 'Postea, cum aliquot libros per intervalla insaniæ conscripsisset, quos postea Cicero emendavit, amatorio poculo, ut opinio fuit, in furorem versus, propria se manu interfecit anno ætatis XLiiii.'

Compare Jerome as quoted at p. 35. 'In treating of such a matter as the philtre,' says Stampini, 'the careful Suetonius not improbably related it with the same caution' as when he refers

Lucretius was not always an Epicurean. In earlier years he passionately admired Empedocles. How violent a transference of hero-worship—from Empedocles, the poet, prophet, priest, and worker of wonders, with his claims to supernatural powers and special Divine revelations, to Epicurus! The wondrous land of Sicily, which bore the poet, he declares, 'appears to have held within it nothing more sacred and wonderful and dear. Nay, the verses of his God-like genius cry with a loud voice, and set forth his glorious discoveries in such wise that he hardly seems born of mortal stock.'[1] Doubtless there remained important points of agreement. Both believed in imperishable first beginnings and in the original production of plants and animals from the earth. Probably this reverence for Empedocles dates from a period long before the 'De Rerum Natura' was written. We cannot doubt that a poet with the fire and genius of Lucretius had an earlier period of productiveness when he wrote poetry on subjects such as other young poets have chosen. It was, probably, not till comparatively late in life that Lucretius became an Epicurean. The heart of youth is not attracted by the good things which Epicurus offers, nor does it fear the dangers from which he promises deliverance.

Why is it that we follow up so eagerly any glimmer of reliable tradition regarding the life of a great poet? Surely it is because a great poet is essentially more human than other men that we crave for any light regarding his personal history and his friendships. The list of Lucretius's friends, which immediately precedes Cicero's criticism in Borgius's 'Life of Lucretius,' demands, at least, to be carefully weighed. 'Lucretius,' it is there said, 'lived on very intimate terms with Cicero, Atticus, M. Brutus, and C. Cassius.' No other source mentions

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to the case of Caligula ('creditur potionatus'—compare 'Calig.' 2: 'Obiit autem, ut opinio fuit, fraude Tiberi'). Jerome, he thinks, may have omitted some such phrase as *ut opinio fuit*, 'either inadvertently or because he had ascertained the fact of the poet's suicide from other sources,' p. 35.

[1] i. 730.

any friendship or connection between Lucretius and the last three. All three were literary men. Atticus and Brutus wrote verse as well as prose.[1] Atticus and Cassius were well-known Epicureans. Had this list of Lucretius's friends been invented by a fifteenth-century scholar, it is by no means likely that a disciple of the older Academy like Brutus would have been included.[2] All were busy men of affairs, and all, except Atticus, leaders in politics on the Conservative side. If Lucretius were intimate with them, the bond lay in common studies rather than in the mutual pursuit of power and place.

Did Lucretius, too, like all the great spirits of his time, come under the charm of the arresting, and in many ways noble, personality of Brutus? There was in both men the same high, uncompromising spirit. Brutus could not only command the respect but win the love of men: in the last words he uttered, he consoled himself by remembering that even in those days of revolution none of his friends had ever betrayed him. In Brutus there was a strength of will, inflexible when once his purpose had been formed;[3] always calm and unshaken, even when life and fortunes hung in the balance, his were the qualities which the poetic temperament most loves to lean upon in friendship.

We are not told to what rank Lucretius belonged, but from the independent yet admiring tone in which he dedicates his poem to Memmius,[4] a well-known statesman and a man of rank, we should gather that he belonged himself to a noble family. He addresses Memmius as an equal might an equal, not fearing to claim with authority his most attentive hearing nor yet to urge

[1] Cornelius Nepos, a friend of Cicero, Atticus, and Catullus, tells us that Atticus regarded Lucretius and Catullus as the foremost poets of his time.

[2] See Cicero, 'Brutus,' 149: 'Vestra, Brute, vetus Academia.'

[3] Cicero quotes a saying of Cæsar's regarding Brutus: 'It makes all the difference whether our friend takes an interest in a project or not; but if he does, he throws his whole heart into it' ('Ad. Att.,' xiv. 1).

[4] As, for example, at ii. 66:

'Tu te dictis præbere memento.'

him to do credit to his ancestry. Jerome's silence as to his birthplace may be due either to ignorance or to the poet having been born at Rome.[1] 'Lucretius' as a Gentile name was especially a Roman one, and does not seem common in other parts of Italy. 'The name,' says Sellar, 'suggests the inference that Lucretius was descended from one of the most ancient patrician houses of Rome, but one, as is pointed out by Mr. Munro, more famous in the legendary than in the later annals of the Republic. The whole tone of the poem is that of a man living in easy circumstances, and of one who, though repelled by it, was yet familiar with the life of pleasure and luxury,' so that we may infer that 'he must have belonged either to a senatorial family, or to one of the richer equestrian families,' members of which often lived on their estates and devoted their leisure to literature.[2]

Who was the man whom Lucretius addresses with such admiration and esteem?

'Our own son of the Memmii,[3] whom thou, O Venus, hast willed for all time to have no peer, adorned as he is with every grace. . . . Thy merit, and the hoped-for pleasure of thy sweet friendship, prevails on me to undergo any toil and to watch the calm nights through, seeking by what fittest words and verse I may at last be able to spread wide in advance before thy mind so brilliant a light that thereby thou shalt be enabled to scan through and through things before hidden.'[4]

[1] Lucretius applies the word *patria* to the Roman State and *patrius* to the Latin language. Poets like Virgil and Ennius apply these words to the districts of their own birth (Sellar, 'Roman Poets of the Republic,' 1881, p. 281).

[2] *Ibid.*, p. 281, 282.

[3] 'Memmiadæ nostro.' The adjective expresses admiration, not familiarity.

[4] i. 25, 140:

> 'Quærentem dictis quibus et quo carmine demum
> Clara tuæ possim præpandere lumina menti,
> Res quibus occultas penitus convisere possis.'

The word *præpandere* means to 'spread in advance,' as when the country in front of one is lit up by lightning.

Caius Memmius was a member of a noble plebeian house not without honour in its day: Virgil places a Memmius on the roll of Æneas's comrades. He began public life as tribune of the plebs in 66 B.C., some ten years before Lucretius wrote his poem, and he rose to the prætorship in 58 B.C.. Next year he went out to the province of Bithynia, and had on his staff the poet Catullus, who records in his verse his utter contempt for the character of his chief—contempt which he can hardly find words foul enough to express. To him Memmius is 'the disgrace of the people of Rome':

'Opprobia Romulei Remique.'

Memmius stoutly supported the senatorial party, and violently attacked Julius Cæsar, against whose character he spread a filthy and ridiculously improbable story.[1] He brought forward a Bill to undo the acts of Cæsar's consulship. It was probably at this time, when Memmius came to the front as a defender of the Senate against Clodius in 58 B.C., that Lucretius's address, 'Nec Memmi clara propago,' was written. Cicero speaks of him and one or two others in a similar tone of confidence as 'most hearty patriots: among others who support the right side, these stand unrivalled.'[2] Presently, and only a short time after Lucretius's death, he changed sides and ingratiated himself with Cæsar, who, always willing to forgive, supported him with all his interest when candidate for the consulship in 54. B.C. But at this crisis Memmius wrecked his career by an extraordinary act. He made public in the Senate an agreement which he himself, along with his fellow-candi-

[1] Remembered only because Catullus has repeated it. Catullus represents the feeling of the nobles, who dreaded Cæsar's rising power. It was the fashion of the time to use any scandalous rumour as a political squib even without any serious meaning. Even a Cicero could descend to this when he wished to blacken his political opponents (see Munro on Catullus, c. 29).

[2] 'Prætores habemus amicissimos et acerrimos cives, Domitium, Nigridium, Memmium, Lentulum; bonos etiam alios, hos singulares' ('Ad Quintum Fratrem,' i. 2, written at the end of 59 B.C.).

date for the consulship, had made with the consuls of the year : the former were to pledge themselves to secure for the consuls false witnesses to the alleged passing by the old Assembly, the Comitia Curiata, of a certain Act which had never been passed,[1] and also two ex-consuls to testify to the drafting of a decree for the same purpose at a meeting of the Senate which had never been held.

The object of this stratagem was to allow the consuls to depart to their provinces without delay when the year was out. In return for this the consuls were to exert their interest for the two candidates at the coming elections. By this act Memmius blazoned abroad not merely his own utter lack of honour (with treachery added), but his want of ordinary decency. His motive is hardly comprehensible : he seems to have quarrelled with his fellow-candidate. He may also have wished to please Cæsar by disgracing Cæsar's bitter enemy, Domitius Ahenobarbus, who was one of the consuls. Whatever the plotter may have intended, this audacious stroke did not succeed. Cæsar was gravely offended. Memmius was impeached for bribery, and went into exile. He married a daughter of Sulla, whom he afterwards divorced. He made himself notorious by the intrigues with which he was credited with various ladies of high rank.[2] Memmius was not only a busy politician, but had also some distinction as a poet, though his verses were reputed sensual. As an orator, Cicero says of him :

[1] Before a consul could go to his province, the *imperium*, or supreme military command, had to be renewed to him, and this could only be done at a formal meeting of the Comitia Curiata, which now existed only for such formalities. But this political form was still a dangerous weapon. If a tribune chose to declare evil omens in the sky, the meeting might be postponed to another year with its fresh uncertainties. And during all this time the province, the valuable milch-cow, must prove barren ! See Tyrrell, and also Shuckburgh's note on Letter 149.

[2] In the case of an intrigue with the wife of M. Lucullus, whose brother's triumph Memmius had opposed, Cicero compares him to a Paris who had insulted not only Menelaus but Agamemnon (' Ad. Att.,' i. 18).

'He had an exquisite knowledge of literature—Greek literature, that is to say, for Latin he despised. As an orator, he was graceful and his language had a charm, but he shirked the labour not only of making speeches but even of thinking, and he impaired his eloquence in proportion as he spared his industry.'[1]

Memmius was an accomplished man of the world, hard, brilliant, superficial, scornful of the vulgar when he did not need to flatter them from the platform, and hampered with no scruples. He had gifts of language which gave him distinction as a speaker and, to some extent, as a poet; he could hold his own both in the Senate and in the popular Assembly, and in discussion with men of letters. Doubtless he also shone among men of fashion. Probably it was his versatility which fascinated Lucretius, whose acquaintance with him was probably only slight, but who was dazzled by accomplishments so unlike his own.

Not improbably Memmius may never have read a single book of the poem dedicated to him. Owing to the prejudices against Epicurus's doctrines, Lucretius seems to fear that he may not win a hearing from him. A letter of Cicero's to Memmius, written some four years after Lucretius's death, suggests an utter indifference on the part of Memmius to all that Lucretius held so dear. Memmius, while an exile, had bought a piece of ground at Athens, including the site of Epicurus's garden. He wished to pull down the ruins and build for himself. Cicero had intimate friends both in Rome and Athens among the Epicureans, and these appealed to him. He

[1] 'Perfectus literis sed Græcis, fastidiosus sane Latinarum: argutus orator verbisque dulcis sed fugiens non modo dicendi verum etiam cogitandi laborem, tantum sibi de facultate detraxit quantum imminuit industriæ' ('Brutus,' § 247). 'Perfectus literis' does not, I think, refer to original composition. Compare § 264, where C. Varro's style is first of all described, and in the next sentence, commencing with 'præterea,' he is called 'perfectus in literis' and also 'skilled in jurisprudence.' Probably Cicero counted Memmius's poems, in subject and otherwise, beneath his notice.

wrote to Memmius a tactful and dexterous letter, complimenting him by taking for granted that his correspondent shares his own contempt for Epicureanism. He cannot expect a man of such refinement to grant his request on account of any sympathy which he may feel with Epicureans, who may at present have given Memmius offence by their insistence. He knows what a lot they are—'Novi enim gentem illam!'—and a man of great culture would not like even to appear to take any interest in the wishes of such people. He begs him to spare the ruins, but merely as a favour to himself—Cicero—and to Cicero's friends. This letter shows both the true Roman contempt for Epicureanism as an illiberal[1] and unmanly creed, and also the real character of the man whose claims to high culture Cicero so dexterously plays upon. The orator knew how to gain a case.[2]

We gather glimpses of Lucretius's way of life and pursuits from the illustrations he uses in his poem. Some

[1] As in his remark about Atticus: 'Is, non quo sit ex istis, est enim omni liberali doctrina politissimus, sed valde diligit Patronem,' etc. ('Ad. Fam.,' xiii. 1).

[2] Munro points out that the coins of this Memmius and of the other Memmii (see Mommsen's 'Röm. Münzer,' p. 597) bear a Venus. 'We come to the flatterers of the Julii before we find so large a proportion of the coins of any family with Venus on them. The Memmii may have claimed Venus for ancestress, though Virgil reserved this honour for the Julii. . . . Lucretius may have wished to gratify his patron by making her his own patron lady' (Munro on i. 4).

In the proœmium of book v. Lucretius enumerates the deeds of Hercules, and refers to the belief that Ceres discovered corn, touching on the latter also in the proœmium to book vi., and in each he shows that Epicurus gave to the human race yet greater boons. Since two coins of the Memmii bear a head of Hercules and two a head of Ceres, Munro sees here again an appeal to Memmius's pride in his family emblems. Nothing could be more effective or less forced than Lucretius's contrast of Epicurus with goddess and hero, and his setting the philosopher above both as a benefactor to mankind. This was indeed Epicurean commonplace. Yet, occurring where these references do, in the opening of each book, one cannot assert that Munro's suggestion may not be justified.

of them are drawn from city life, as when he describes the strain left on the nerves by watching public games for days in succession, the pomp of a military review in the Campus, the colours reflected on the stage by the awnings of the theatre, the luxury of great houses. 'But such illustrations,' says Sellar, 'are rare compared with those which speak of a life passed in the open air and of intimate familiarity with many aspects of Nature.' He has not only the poet's enjoyment of the beauty of the outer world, but also observes Nature with the eye of the man of science. His minute observation is shown in many a scene from seashore, mountains, river-side, the growth of plants and trees, the ways of animals. Repeatedly he speaks of mountain-climbing, as when companions lose their way and get separated on the hills and in the darkness shout to each other.[1] His picture of the party lunching on the greensward—

'Propter aquæ rivum, sub ramis arboris altæ'—

shows that his enjoyment of Nature was not always a solitary pleasure. Some remembrance of active adventure is suggested by illustrations of his philosophy drawn from the experience of a sea-voyage, of riding through a rapid stream, of watching the action of dogs tracking their game through woods and over mountains, or renewing the memories of the chase in their dreams.[2]

Gladly should we have known as to the poet's parentage, his native place, his career, the good or evil fortune of his life, but all such facts he keeps sternly back from us as if by deliberate intention. No reference in the poem allows us to identify him with any one district of Italy rather than another. Probably we may surmise three periods in Lucretius's life—his youth, when he was an admirer of Empedocles, and probably wrote verse very different in subject from his poem; his early manhood, spent as a man of the world following the pleasures of

[1] See Lucr., ii. 331; iv. 575; vi. 469.
[2] Sellar, p. 287. See Lucr., i. 404; iv. 387, 420, 432; v. 991, etc.

his age and rank ; and a later period of violent reaction from the preceding one. But this we know : that, probably somewhat late in his life, he came under the influence of Epicurus :—so thorough was his conversion that it seems strange he should not tell us how and when—and the master, whose face he had never seen, who had lived whole centuries before him, set his whole soul on flame with a generous passion to help his fellow-men.

But, though Lucretius holds back every detail of his own history, there forces itself upon us a sense of something ill-starred in his career—a noble spirit hemmed in by barriers of fate consisting either in physical heredity or in outer environment. Throughout the poem there is a certain sadness, the essence of which seems to be a loneliness of spirit, as of one whose heart and soul had never truly fused either in love or friendship with another's. The fact of Lucretius's death by his own hand may be regarded as certain. Suetonius, we may be sure, ascertained and recorded the manner of the poet's death. In case of a writer so high-strung, so eager to complete the work for which he lived, we feel certain that death by his own hand, leaving his poem so nearly finished, could be no ordinary suicide. The close of the poem, a narrative abruptly broken off, impresses us like some abandoned dwelling with every sign of sudden and unintended departure lying around.

CHAPTER III

LUCRETIUS'S INFLUENCE ON HIS OWN AGE

LUCRETIUS'S poem was published, as Munro and most scholars hold, not many months after his death—'early in the year 54 B.C., and in the unfinished state in which the poet left it.'[1] No sooner had the book appeared than it began to work like a ferment in the minds of his own generation, as it has worked on every generation since.

While Lucretius during those latter years was living, probably in retirement, absorbed in his great work, with all his powers fixed in one set strain to complete his task, and with his spirit so dominated by Epicurus's system that every sunrise and sunset, every sight of cloud-piled heaven or flooded river, was blended in his thoughts with the atomic movements which underlie all things, and which make the world go on 'without the gods'—another fine spirit was living the happy, careless life of a young Roman patrician, enjoying to the utmost society, friendship, love, travel, and drinking the wine of life with its full sparkle. Did Catullus and Lucretius know each other? Both belonged, however remotely, to the same circle; both were well known to Cicero; one knew Memmius from a distance and admired him, the other knew him close at hand and read him aright. No tradition tells of any intimacy between the two poets, yet there is a link between them. Catullus died at the age of thirty, about a year after Lucretius, and, probably, a few months after Lucretius's work was

[1] Munro, introduction to notes.

published.[1] Catullus's greatest poem contains in one long episode many lines which are evidently echoes of Lucretius,[2] written when the younger poet's mind was saturated with the 'De Rerum Natura,' perhaps the last book which he studied. Thus Catullus, too, was caught by the spell of the strange, lofty voice which has taken hold of so many others in their youth and compelled them to listen.

Yet, while admiring, Catullus was probably by no means converted. Indeed, the close of the same poem seems to convey a veiled, yet strong, protest against Epicurean theology. He has shown how of old the gods would come and go among men; but of later days 'the confusion of all things right and wrong in the madness of sin has turned away from us the mind of the gods which works righteousness: wherefore they no longer deign to visit such gatherings, nor do they suffer themselves to be touched or encountered in the light of the day':

> 'Quare nec talis dignantur visere cœtus,
> Nec se contingi patiuntur lumine claro.'

This might be thought merely a conventional pious ending made to be in keeping with the old legend; but the spirit of the whole poem is against this, and the concluding line, with its strange, appealing note, appears a

[1] So Munro on iii. 57.

[2] Munro has shown this conclusively, I think, even though so fine a scholar as Ellis disagrees. Such unusual phrases and uses as 'auræ . . . nullis sensibus auctæ' ('Peleus and Thetis,' 165, compared with Lucr., iii. 626), or 'magnis curarum fluctuat undis,' used of Ariadne at l. 62 (compared with Lucr., vi. 34, 74, the verb used of a person by both writers), or l. 198: 'Quæ quoniam veræ nascuntur pectore ab imo' (compared with Lucr., iii. 57), seem to me fairly conclusive. This poem of Catullus's, his most ambitious one, would appear to have been written or completed just before his poems were published. 'All the passages I have cited,' says Munro, 'come in the episode of Theseus and Ariadne, while the passages from Lucretius are scattered throughout his poem.' That episode, he suggests, was filled up by the poet when he was fresh from reading the new work of Lucretius (see his notes on iii. 57).

protest against the fashionable disbelief of the day. It were hardly possible for two natures so different as Lucretius and Catullus to hold the same creed. Yet they have some notes profoundly in accord. The 'Atys' breathes almost as deep a horror of superstition, with its sensual, reason-destroying orgies, and its impious outrages on Nature, as does, upon other grounds, the 'De Rerum Natura.'

But the poem of Lucretius exercised a far profounder influence over a youth destined to become one of the world's greatest teachers. On the very day when Lucretius died, a boy then at school in Cremona attained the age of fifteen, and assumed the *toga virilis*, the garb of youth. He, too, was cast in a very different mould from Lucretius. Beyond question, the new great poem which had startled Rome was the inspiration which dominated Virgil's youth. Echoes of Lucretius's verse are heard in almost every page of his, and phrases of Lucretius's, vivid as a lightning flash, stand out from the more subdued colouring of Virgil's poetry. 'His whole mind when writing his second Georgic,' says Munro, 'must have been saturated with the poetry of Lucretius.'[1] His very cadences show how Lucretius's verses sang themselves in his brain. And what wonder that the youth was impressed by so great a work! All the marvel of the world, its mingling of beauty and terror; the impotence of man struggling against the mighty forces of Nature, while the 'stern stars' look down pitiless;[2] the truth or falsehood of the old religion; the care or indifference of the gods to us—all these questions, made vivid by a marvellous and lurid imagination, must have made riot in the heart of the youth, then at the very age

[1] Munro on i. 78; he collects instances in his note on iii. 449.

[2] See, for example, the picture of the admiral and his fleet swept helplessly before the tempest (v. 1226). For the *signa severa* (v. 1190) we may compare George Sand: 'Le froid regard de la lune et des étoiles qui semblent vous dire: vous n'êtes que vanité, grains de sable: demain vous ne serez plus et nous n'en saurons rien' ('Lettres d'un Voyageur').

when a work of genius impresses the mind most deeply, and in Virgil's case all the more because of the daring of the book and the splendour of gifts unlike his own. At first, it would seem, Lucretius carried him completely away. In one of his early poems Virgil bids farewell to the studies of his youth, rhetoric and poetry, and thus announces his purpose to devote his life to philosophy as an Epicurean :

'I am now setting sail for the haven of happiness, seeking the learned words of the great Siro, and shall set my life free from every anxious care. Pass hence, ye Muses—ye too sweet Muses, farewell ; for I will confess the truth : sweet have ye been. Yet, I ask you, visit my studies again, though modestly and only rarely.'[1]

Siro was a famous teacher of Epicureanism in Rome 'A life free from all care'—this sounds like the confidence of youth. But this aspiration, so unlike Virgil, is an Epicurean commonplace. In his sixth Eclogue, written about the same time, he describes the creation of the world in accordance with Lucretius's cosmology, the four elements being formed by the concourse of atoms in the mighty void.[2] The grandest task which he can conceive for a poet is to expound the laws which govern Nature in earth, seas, and heaven. Evidently this was his early ambition.

But the drawing of the Muses who love the ways of men proved stronger than that of the colder Muse of science. Bred in the country, where the old religion of Rome which the capital had cast away still lived in its purity, sensitive to the simplicity and beauty of its rites,

[1] 'Nos ad beatos vela mittimus portus
Magni petentes docta dicta Sironis,
Vitamque ab omni vindicabimus cura.
Dulces Camenæ (nam fatebimur verum,
Dulces fuistis), et tamen meas chartas
Revisitote, sed pudenter et raro.'

[2] 'Namque canebat uti magnum per inane coacta
Semina terrarumque animæque marisque fuissent.'
Ecl. vi. 31.

with its prayers to the rustic gods for increase in field and fold, himself of a profoundly religious nature, Virgil, while impressed with the new truths Lucretius set forth, must, as he grew more mature, have felt that these did not completely account for the world and its life, still less for the facts of his own deepest consciousness. This conflict of feeling he has expressed in a famous passage :

'First of all, I would pray that for the great love which has smitten me the charming Muses, whose minister I am, would receive me graciously, and teach me the courses of the stars in heaven, the various eclipses of the sun, and the agonies of the moon, whence come quakings of the earth,' and so forth. 'But if I should be restrained from sounding these depths of Nature by the blood that runs too cold and sluggish about my heart,[1] then let me delight in the country and the streams that freshen the valleys, let me love river and woodland with an unambitious love. . . . Happy the man who has been gifted to learn the causes of things, and so trampled underfoot all fears and the relentless decree of death,[2] and the roar of greedy Acheron. Blessed, too, is he who has won the friendship of the rustic gods, Pan and old Silvanus, and the sisterhood of Nymphs':

> 'Felix qui potuit rerum cognoscere causas
> Atque metus omnis et inexorabile fatum
> Subjecit pedibus strepitumque Acherontis avari !
> Fortunatus et ille Deos qui novit agrestes,
> Panaque Silvanumque senem Nymphasque sorores !'

The thinker thus extolled in phrases, every one of which recalls the very voice of Lucretius, can only be

[1] Empedocles, Lucretius's earliest master, held that the blood about the heart was the seat of the intellect. Thus, coldness of blood would accompany feeble capacity.

[2] '*Fatum*, death regarded as the fiat of Nature' (Conington). *Inexorabilis* calls up at once the conclusion of Lucretius's third book, a passage of astounding power.

that poet.[1] The last two lines show a reaction. Grand as was the gain of a reign of law established in Nature, Virgil had come to feel that Lucretius's belief was a cold thing, and left the world lonely and empty.

Are we to see in this passage merely a weak compromise—a nature which accepted with the intellect the decrees of science, but all the while regretted the old worship, so picturesque and cheerful, and therefore could not bring itself to follow truth the whole way? Did Virgil compound with his conscience in order to retain the 'comfort of belief'? This would be a superficial conclusion. The greatest minds are ever open to truths which their intellect cannot as yet formulate. Large-mindedness is seen in this—that a man has a certain distrust of his own logic. The bigot, whether he be Catholic Inquisitor or Calvinist, High Churchman or Agnostic, is known by his confidence in insisting upon the entire logical consequences of his own doctrines, however much the facts of human experience conflict with these. The world is too big a world, and Lucretius's solution of it was far too complete ever to satisfy a mind like Virgil's.

But the leaven of Lucretius worked on in the heart of Virgil all his life through. The violent collision between old beliefs and the new science, which Lucretius wrought in Virgil in his youth, was as an electric shock, which

[1] Compare such unmistakably Lucretian passages as—

'Quare religio pedibus subjecta vicissim
Opteritur.'
Lucr., i. 78.

'Et metus ille foras
Præceps Acheruntis agendus.'
iii. 37.

'Naturam primum studeat cognoscere rerum.'
iii. 1072.

'Nec poterant quibus id fieret cognoscere causis. . . .
Ergo perfugium sibi habebant omnia divis
Tradere.'
v. 1185.

Munro at one time thought that Virgil refers here to Epicurus, but entirely discarded this idea (see his note on i. 78).

shook him loose from conventional notions, and quickened both his heart and mind ever after to seek to lay hold on the reality of things. Lucretius forced him to realize the falsehood of the popular notions about the gods, the hollowness of the formal worship which satisfied the many, and he brought home to him that bitter sense of man's nothingness in an infinite universe, which saps his courage in facing the crises of life. It is the mark of a noble nature that all this only drove Virgil to hold ever more strongly to those ethical convictions of the value of goodness and purity which were bound up with his own spontaneous religious feeling. With so many beliefs shifting round him, on this ground his anchor held even while he doubted whether the great Unseen Power, which is mightier than the gods, sides with the right, or has any care whether the individual perish or not, be it Dido, or Pallas, or Marcellus.[1] Lucretius held up before the young poet's eyes the hard facts of the world, man's hard and unequal fight with Nature and Fate, and helped to arouse his profound sympathy with all who suffer in the cruel stress and strain of life. Had Lucretius never lived and written, Virgil would not have become the poet whose deep and rich humanity has made him one of the world's best-loved and greatest teachers.

Another instance shows how profoundly Lucretius touched the spirit of his age. Two natures more unlike than Virgil and Horace could not well be found. Horace, when a young man, in his first published book, which appeared thirty years after Lucretius's death, expresses very plainly his acceptance of Epicurean doctrines. In his account of his journey along with Virgil and Mæcenas to Brundisium, he speaks of visiting Egnatia, where it

[1] 'In so far as there is any conflict between right and wrong in the "Æneid," the wrong appears to be the "victrix causa" which pleases the gods. . . . The Fates act in a hard, plain, arbitrary way, irrespective of right and wrong, regardless of personal happiness or suffering' ('Virgil,' by W. Y. Sellar, chap. x., (3). Sellar's treatment of the religious feeling of Virgil is both profound and broad.

was believed that at a certain spot a miracle was wrought :[1]

'This made us laugh and jest, while someone was eager to persuade us that incense melts at the entrance to the temple without fire. That a superstitious Jew like Apelles may believe, but never I ! for I have learned that the gods lead a life without care, and that, if Nature works anything marvellous, 'tis not that the gods are displeased, and send it down from their lofty home in heaven ':

> 'Credat Judæus Apella,
> Non ego : namque deos didici securum agere ævom,
> Nec, si quid miri faciat natura, deos id
> Tristis ex alto cæli demittere tecto.'[2]

That 'the gods take no heed for man' was one chief Epicurean watchword. Horace states here as clearly as possible the Epicurean position, that the fixed laws of Nature leave no room for Divine action, and therefore that such a thing as a miracle is impossible. But in an ode published some twelve years later he recants. He has heard thunder beneath a cloudless sky, and cannot but recognize it as the rolling of the unseen chariot-wheels of Jupiter. Therefore he surrenders his old 'wisdom which is foolishness,' and confesses that he has wandered far astray, and is now compelled to 'return to the way he had forsaken.'[3] (The Epicurean specially claimed the name of 'Wisdom' for his doctrines.) Is Horace's account of his conversion serious ? Sellar thinks not. Probably Horace had found that his profession of Epicureanism in the Satires had not com-

[1] Pliny says that the miracle consisted in wood bursting into flame without fire being applied when placed on a certain sacred stone ('Hist. Nat.,' ii. 107).

[2] 'Satires,' i. 5, 100. Compare Lucr. v. 82 : 'Nam bene qui didicere deos securum agere ævom.'

[3] 'Parcus deorum cultor et infrequens,
Insanientis dum sapientiæ
Consultus erro, nunc retrorsum
Vela dare atque iterare cursus
Cogor relictos.'
Odes, i. 34.

mended him to the Emperor, with his zeal for 'restoring religion,' or to Mæcenas. In any case, Horace was not very much of an Epicurean; probably he valued what was best in Epicureanism as little as he valued what was best in Stoicism. He was more a man of the world than anything else, but it is evident that he, too, had been impressed by Lucretius's teaching, and probably as deeply as his nature allowed of.[1]

Why does neither Virgil nor Horace name Lucretius expressly? Probably in each case for the same reason. Both stood in an official relation to the Court, which could not tolerate a poet who attacked the national religion.

A generation later we find that even the shallow Court poet, Ovid, could feel the grandeur of Lucretius, whom he dares to name. Referring to the end of the world, he says:

'Perish then shall the song of Lucretius, high of heart,
Perish, but not till the day when earth from its place shall depart.'[2]

And is not Ovid right? While the world stands Lucretius shall never be forgotten, for he loved this earth so well and so reverently that no other poet has been able to paint it with such grandeur. Of him, in a measure beyond other men the old verse is true: 'He hath made everything beautiful in its time, and He hath set the world in their heart.'[3] His feeling for Nature is a reverence which might almost of itself be called worship—a worship which defies his creed.

[1] 'In early life, when Horace wrote his Satires, Lucretian influence was strong upon him.' During his more mature years, as shown by his Odes, it can seldom be traced; it revives in the first book of the Epistles, but in his latest writings it is 'practically non-existent.' See Professor Merrill's judicious paper (University of California Publications, 1905).

[2] 'Carmina tum sublimis sunt peritura Lucreti
Exitio terras cum dabit una dies.'

Amores, i. 15.

Ovid names him again at 'Tristia,' ii. 425.

[3] Eccl. iv. 11. The interpretation may be disputed, but the old rendering expresses a great truth.

The vigour with which Lucretius tore a deep new channel for the thought of his age has impressed every succeeding generation. His rich colouring, crossed with grim shadows, seizes and masters the imagination. His phrases have an astonishing daring and energy : they seem to project themselves from the page, and assume form and substance, and speak with living voice. The courage with which he faces the open universe makes him, in this at least, akin to all whose worship has risen above fear. His profound pity for the superstitious and ignorant, for human illusions and wasted efforts, is as deep as his indignation against those who deceive men in the name of God, and it appeals to every generous spirit. The high prophetic fervour with which he singles out his hearers, and entreats them to cast away their foolish ambitions and take hold of that which alone shall save them, grips the heart as if he spoke to us man to man and face to face. And over whomsoever in his youth Lucretius has cast his spell, he becomes conscious that the poet wields over him a strange power, insistent and increasing, beyond what he can explain. From that enchantment he does not lightly break free.

CHAPTER IV

THE ORIGIN OF THE ATOMIC THEORY

EVER since Professor Tyndall's famous Belfast Address in 1874, a fresh interest has awakened in Lucretius, both for scientific men and others. This unwonted popularity is not on account of his bold attempt to abolish the gods and give a death-blow to superstition, hardly caring, meanwhile, whether religion might perish at the same time. Nor is he read by all even for his splendid poetic genius, for some of his admirers are extremely unpoetic people. The reason is that his poem contains an admirably clear and straightforward exposition of a theory which science has long accepted and on which most of its progress in chemistry and physics has been based. Besides this, Lucretius's subject stands in close relation to some of the great controversies of our own time: the Darwinian doctrines of Evolution, both the struggle for existence and the survival of the fittest, are clearly foreshadowed by him. The vexed questions of our day as to man's origin and destiny look us in the face again in his poem.

The propositions in which Lucretius has stated his atomic theory anticipate recent discoveries in a most marvellous way. Science has now proved that his propositions as to the constitution of matter, in each case, are either certainly true, or else foreshadow the truth. Thus Lucretius's exposition of the ancient atomic theory has more than a mere historical interest. Indeed, its agreement with the results of modern science makes us

wonder how the ancient students of Nature, who had no means of verifying the observations of the senses through experiment, could have succeeded as they did. Like men walking abroad at night without a lantern, they could take with them no test of experimental inquiry by which to verify their hypothesis ; but, in spite of all, some faculty enabled them to keep the right path. And this is the more wonderful, because (like our modern wave-theory of light and colour) the atomic hypothesis, in some points, goes altogether contrary to the evidence of the senses. Certainly, it must have been thought startingly original when first proposed, nor it is easy to imagine what could have suggested to any man's mind a conception which the senses seem so to contradict. And yet, while we accept this theory as to the constitution of matter as in very great part true, we reject Lucretius's deduction from it, the very thing for the sake of which he embraced it most eagerly. To Lucretius the existence of eternal uncreated atoms is important specially because this enables him to prove that the world has made itself, and that there is no room for Divine action within it.[1]

The poem on 'Nature' ('De Rerum Natura') has an extraneous interest ; it is of value for more than the thoughts of Lucretius. If Epicurus's great work, in thirty-seven books, entitled 'Concerning Nature,' or the

[1] Clerk-Maxwell even inferred from the character of the atoms, and the exact collocation of matter which they exhibit, the existence of a first cause, their Maker, from whom their powers are derived. Things which are unalterable cannot, he argues, have been formed by any of the processes which we call natural; and since each molecule is exactly similar to all others of the same kind, they bear the character of 'manufactured articles,' not of that which is eternal and self-existent (see his article 'Atom' in the 'Encyclopædia Britannica'). But, according to Professor Clifford, we have no evidence as yet that the molecules of any given gas are 'exactly' of the same weight. Moreover, even if they were, we have no evidence that it is absolutely impossible for molecules of matter to have been evolved out of ether by natural processes ('The First and the Last Catastrophe,' Essays and Remains, vol. i.).

other, 'Concerning the Atoms and Void,' still existed, in which he set forth his theory of atoms, we should go to him as the older and more original source. Not that even he was its author: the germ of the theory is attributed to Leucippus, whom Zeller considers to have been a contemporary of Anaxagoras and Empedocles. Though Epicurus persistently avoids naming Leucippus,[1] he appears plainly to refer to him on one occasion when he controverts his opinion and distinguishes it from that of Democritus.[2] Aristotle and Theophrastus both expressly acknowledge Leucippus as the originator of the atomic theory.[3] It was next taught by Democritus (sometimes called a pupil of Leucippus), who died about 360 B.C., and it was nearly a century later before it was fully developed by Epicurus. Zeller says, 'The physics of Democritus in all their essential features are derived from Leucippus,' though he adds that Leucippus treated some of these doctrines probably less profoundly than his disciple.[4] But Leucippus is only a name to us. Of Democritus we know far more. To whatever extent he may have accepted doctrines attributed to Leucippus, beyond question Democritus deserves the credit of having first completely thought out and developed the atomic theory.[5] Democritus possessed a genuine scientific spirit. The facts of his personal history, his many

[1] Stress need not be laid on this. It is the habit of Epicurus in the writings we have never to name even Democritus, but, when he controverts his opinion, to refer to it as held by 'the natural philosophers,' or 'one of the natural philosophers.'

[2] *καθάπερ τινὲς* (*τινὰ* MSS.) *φασίν* (Diog. L., x. 89). Compare 90: *καθάπερ τῶν φυσικῶν καλουμένων φησί τις* (Democritus). If we compare Diog. L., ix. 31, it becomes pretty clear that Leucippus is referred to; so think both Usener and Diels.

[3] Aristotle, 'de gen. et corr.,' 8, 324*b*; 35, 899.

[4] 'Pre-Socratic Philosophy,' vol. ii., p. 299 (Eng. trans.). He specifies these doctrines in a note at p. 296.

[5] We may here refer to the acute and able chapter on Democritus in Lange's 'History of Materialism.' It, however, requires to be supplemented and corrected by Zeller's long section on Democritus, which is full of the most careful and impartial research.

journeys for the sake of acquiring knowledge, and of observing Nature, and his long life of laborious research, show that, as Zeller says, 'He was a man who with rare devotion gave his life to science, and who, as it is related, would have refused the kingdom of Persia in exchange for a single scientific discovery.'[1]

There can be no doubt that the whole framework of Epicurus's atomic theory and physics was built by Democritus, though in not a few points of importance Epicurus corrected and greatly expanded it. For example, both Democritus and Leucippus taught that the number of different shapes of the atom was infinite,[2] but Epicurus asserted it to be finite, though inconceivably great.[3] Democritus denied that atoms have parts; Epicurus held that, though indivisible, they have parts.[4] The atomic theory of Democritus was thoroughly unpopular among both the philosophers and the natural inquirers of Greece. Most of them pass it by contemptuously. Aristotle discusses it, but only to throw it aside. Therefore Epicurus deserves credit, not merely for having developed and added to it, but also for the penetration which led him to revive, and thus to preserve for the world, a theory which in his own day was generally scouted as absurd.

From Cicero's time to the present day Epicurus has been charged with denying or systematically concealing 'his indebtedness to Democritus.' Justice must be done to Epicurus here. It must be admitted that,

[1] 'The writings of Democritus which Sextus (who lived in the third century, A.D.) still possessed were no longer in existence when Simplikius wrote' (Zeller, *ibid.*, p. 215). The fragments of Democritus which are preserved (Mullach, 'Fragmenta Philosophorum Græcorum,' vol. i.) are mostly from his ethical writings. Burnet believes that there was 'an atomistic school at Abdera,' and thinks it probable that 'the working out of the atomic theory was not, properly speaking, due to any one man' ('Early Greek Philosophy,' p. 351).

[2] Aristotle, 'de gen. et corr.,' p. 314.

[3] Diog. L., x. 42.

[4] 'Simplicius in Aristot.,' quoted by Usener, 'Epicurea,' f. 268.

towards the end of his career, Epicurus dwelt far more on the differences between Democritus's system and his own than he did on their large agreement, and even allowed himself to speak contemptuously of the former, although such expressions probably refer less to the atomic theory than to other subjects on which they differed widely, but there is no reason to suppose that he ever denied his debt to Democritus. Plutarch says, 'For a long time Epicurus used to proclaim himself a follower of Democritus.'[1]

With the exception of two long and valuable letters by Epicurus, containing an abridgment of his system, a brief collection of maxims and many fragments,[2] the works of the three Greek exponents of the atomic theory are lost to us, and this most astonishing fruit of ancient thought, which has been adopted and substantiated by modern experimental science, is to be found fully described only in Lucretius's poem. Lucretius has followed Epicurus closely, as coincidences with the fragments of Epicurus and the letters preserved by Diogenes, make

[1] 'Adversus Coloten,' iii., p. 1108. Plutarch continues: 'We are told this amongst others by Leonteus, one of Epicurus's chief disciples, who writes that Epicurus honoured Democritus because he was the first who truly studied science, and that Epicurus's philosophy in general is called Democritean because Democritus was the first of the two to inquire into the principles of Nature,' while Metrodorus, Epicurus's most intimate friend and disciple, spoke to the same effect. Epicurus's assertion that 'Leucippus was no philosopher' (quoted by Diog. L., x. 13) refers probably to Leucippus's theology, etc. Considering the relation between the two, Epicurus's language regarding Democritus showed characteristic bad taste, and excuses the blame of other writers, such as Cicero (see his 'De Nat. Deorum,' i. 72, and 'De Fin.,' i. 6, 17).

[2] These letters, entitled 'To Herodotus' and 'To Pythocles,' are preserved by Diogenes Laertius (book x.). Epicurus stated and applied his atomic theory in the following works: 'On Nature,' 'On Atoms and the Void,' 'On the Angle in an Atom,' 'On Sight,' 'On Touch,' 'On Images' (that is, the films which cause vision), 'An Abridgment of the Arguments against the Natural Philosophers' (probably Democritus among the rest), 'On Fate,' On the Gods' (Diog. L., x. 28).

very plain: 'Thee I follow, thou glory of the Greek race,' says Lucretius, 'and now fix my steps firmly in thy footprints and tread in them.'[1] He does, indeed, follow his master step by step with no wavering tread. The more that we study Epicurus, the more closely do we find that Lucretius has reproduced his doctrines. He has added, perhaps, nothing really new to Epicurus's atomic theory: his contribution to it is only a most eloquent and distinct exposition of what he found in Epicurus. There is good reason for believing that, but for this service done to it by Lucretius, Epicurus's system would never have exercised the powerful influence over modern thought which it has done. Judging from the careless, slipshod style and general formlessness of Epicurus's surviving writings, he could never have composed an account of his own doctrines, so clear and distinct, yet so concise as that which Lucretius has left us. In particular, Lucretius's illustrations are admirable, so apt are they in each case to the point which he is explaining. In the eyes of science now, the value of Lucretius's poem lies in its full and exact statement of the ancient atomic theory as held by Epicurus. This it is which at present gives Lucretius so special an interest.

It was Gassendi who rescued Epicurus's atomic theory from the forgotten science of the old world and revived it as the truest basis for a scientific study of Nature. Through Gassendi and his influence both on Newton and on Boyle,[2] as well as on many other minds in the seventeenth and eighteenth centuries, Epicurus's theory has taken firm root in modern science, and has developed, by stage after stage, into that atomic theory of modern chemistry which has proved fruitful in so many fresh discoveries made both in chemistry and, in our own day in particular, in molecular physics. The history of the atomic theory in recent times is well known. The name of the chemist in whose hands it acquired a new force

[1] 'De Rerum Natura,' iii. 4, 5.

[2] See the words of Boyle quoted by Lange, vol. i., p. 303.

is now inseparably associated with it. Dalton assumed the existence of atoms, conjectured that the weight of the atoms making up each element is constant, assigned different specific weights to the different kinds of atoms, discovered the laws according to which they combine, and thus founded his celebrated Atomic Theory. So important were these discoveries and their results that they earned for Dalton the title of the 'Father of Modern Chemistry.' The progress of chemical knowledge during the last century has been vitally connected with the hypothesis that there are such things as atoms, ultimate particles of matter, and its developments, nor is its value, as concerns fresh discovery, yet exhausted. In 1873 a well-known chemist,[1] the President of the British Association, asked, in the course of his address, 'What is the meaning of the great activity shown at present in chemistry?' He answered the question thus: 'Chemists are examining the combining properties of atoms, and getting clearer views of the constitution of matter.' Many years later Dr. Thorpe has said, 'Every great advance in chemical knowledge during the last ninety years finds its interpretation in Dalton's theory.' Professor Huxley says, 'If there is one thing clear about the progress of modern science, it is the tendency to reduce all scientific problems, except those that are purely mathematical, to problems in molecular physics—that is to say, to attractions, repulsions, motions, and co-ordination of the ultimate particles of matter.' So important has proved Epicurus's conception that there exist such ultimate particles, molecules, or atoms. It will be seen that the atom, as described by Lucretius, in many respects closely resembles the modern chemical atom.

[1] Professor A. W. Williamson.

CHAPTER V

THE ATOM OF LUCRETIUS

BEFORE beginning to set forth his philosophy in due order, Lucretius expresses in the strongest way his obligations to his master: 'When human life lay shamefully grovelling upon earth, crushed down under the weight of *Religion, who showed her face from heaven, frowning upon mortals from on high with awful aspect*, a man of Greece was the first who ventured to lift mortal eyes to her face, and the first to withstand her openly.' Neither stories of the gods nor the thunders of heaven could make him afraid, but rather spurred him on, says the poet, to burst the bars of Nature and find her secret. 'Therefore the living force of his soul prevailed, and he passed out far beyond the flaming walls of the world,[1] and traversed in mind the boundless universe, whence he returns, a conqueror, to tell us what can be and what cannot be; in short, on what principle each thing has its properties defined, and its deep-set boundary-mark. *Wherefore religion is put beneath our feet and trampled on in turn; us his victory raises to heaven.*'

There is a boundless pity in the words describing the misery of men from the dominion of superstition—the

[1] What would Lucretius have said to the spectrum analysis, by which the chemist can literally pass beyond the 'flaming walls of the world' (that is, the fiery circuit of ether forming our heavens), and bring us tidings from the distant stars? Wonderful, indeed, he would have thought it; but he would have valued it most if it could have aided him in any way to prove that the gods have not created either the world or man, and are powerless, whether for good or evil.

same pity and enthusiasm for humanity that has made saints and philanthropists in all ages, from St. Francis to Robert Owen (though, certainly, there was more of the latter in the constitution of Lucretius). But we have quoted the passage to show what Epicurus was to Lucretius. Elsewhere he designates him a god; the popular deities, he says, are small compared with him. It is characteristic of the poet that, believing in no God whose help could avail mankind, he set up for worship the best thing that he could find—a heroic man. We cannot help questioning whether Epicurus would have approved of Lucretius's fervour even in the way of gratitude to himself. Was so great earnestness, even in the cause of his own philosophy, consistent with the calm and passionless tranquillity which the wise should seek? This passage, moreover, gives the keynote to the whole poem. Probably nowhere does Lucretius forget that in his scientific inquiries the highest interests of man are vitally concerned. His demonstration of the existence of atoms is important chiefly, he feels, in order that man may be enabled to live his life aright, free from the crushing pressure of superstitious fears. It is science *for the sake of theology* that is here treated. When we ascribe this aim to Lucretius we are reading no modern notion into the poem. Four times, in the introduction to each of four books of the poem, he insists at length that his aim is to deliver men from superstition. Men, he says, are like children in the dark, who shudder at things which do not exist at all, and from these slavish fears nothing can deliver them but the knowledge of Nature and her laws.[1]

Now for the first time he states the aim of his poem. His words, though simple, at once command the ear:

> 'Nam tibi de summa cæli ratione deumque
> Disserere incipiam et rerum primordia pandam,
> Unde omnis natura creet res, auctet alatque
> Quove eadem rursum natura perempta resolvat.'[2]

[1] ii. 55-61. The comparison of men to children in the dark is repeated at iii. 87-93, vi. 35-41.

[2] i. 54-57.

'I shall begin to set forth the mighty scheme of heaven and of the gods'—he will tell us; that is to say, why sun and moon range through the heaven. Not because a god dwells in each and guides it; they are but parts of a machine all the motions of which are controlled by natural laws—'and,' he goes on, 'I will unfold the atoms whence Nature forms and increases and feeds all things that are, and into which she dissolves them again after their destruction.'

To plain men in Lucretius's day—and even then the *esprits forts* were the few—the sun was an actual god, and the heaven was the region of his dwelling, and eclipse and tempest beaconed forth his anger, and struck terror, as we shall see, even into brave men. One notes the daring, the intense conviction, of these words. He goes straight to grapple the problem. Youth does not resent the confidence with which he throws aside, along with conventional beliefs, all the gain of centuries of Greek thought wrestling with these very questions. But how deeply must these words have shaken the very soul of a young poet like Virgil, who knew too well the false beliefs which made men unable to look on Nature without fear!

The first two books contain a number of propositions as to the qualities of the atoms, exactly what is denominated in our text-books 'the properties of matter.'

The first proposition is that 'nothing is ever begotten out of nothing by Divine power.' This outset is science and theology mingled, and it is, in this, characteristic of his whole work. 'Men see many phenomena take place in earth and heaven, the causes of which they cannot understand, and, therefore, believe them to be done by Divine power.' But I will show, says Lucretius, how all things are done 'without the hand of the gods.' Fervently, and with submission, as Lucretius realized the order of Nature, the notion of deities *interfering* therewith must have seemed to him mean indeed. This, his first principle, holds true invariably of matter once

created, as we daily observe it, and is assumed in every scientific treatise of to-day. By it Lucretius means to express that the laws of Nature are constant, that phenomena take place according to well-defined laws, and that nothing ever happens without a cause for it. His illustrations of the principle show that, at any rate, he had distinctly grasped the fact of law as few, or perhaps none, in his day can have done. If there is anything for which the world is indebted to Epicurus (probably still more to Lucretius), it is for a clear enunciation of the principle of law in Nature. Lucretius asserts it over and over again in modern-sounding phrases. '*It is absolutely decreed what each thing can do and what it cannot do, according to the conditions of Nature.*'[1] Indeed, on this principle of the constancy of law his whole philosophy is based. As we shall see, Lucretius connects this

[1] These words are often repeated in the poem, and are intended to carry a very weighty meaning. Lucretius first uses them at the very outset of his task to express the triumphal and crowning result of Epicurus's intrepid researches into Nature—viz., the knowledge of natural laws. It is this supreme discovery which, he tells us, finally delivers men from their bondage to superstition :

> ' Unde refert nobis victor quid possit oriri,
> Quid nequeat, finita potestas denique cuique
> Quanam sit ratione atque alte terminus hærens.
> *Quare religio pedibus subiecta* vicissim
> *Opteritur*, nos exæquat victoria cælo.'
>
> i. 75-79.

We may compare the passage where he sums up the aim of his poem, and, in order to do so, simply re-states this one great principle, which he has throughout been tracing and proving to hold good through the whole of Nature :

> ' Cuius ego ingressus vestigia, dum rationes
> Persequor ac doceo dictis, quo quæque creata
> Fœdere sint, in eo quam sit durare necessum
> Nec validas valeant ævi rescindere leges.'
>
> v. 55-58.

At the close of the paragraph he recapitulates the same principle :

> ' Quid queat esse,
> Quid nequeat,' etc.
>
> v. 88-90.

principle of natural law with the indestructibility of the atoms: were the atoms not unchangeable, the productions of Nature would not obey definite unchanging laws. 'For, if the first beginnings of things could in any way be vanquished and changed, it would then be uncertain what could and what could not come into being—*in short, on what principle each thing has its properties fixed, and its deep-set boundary-mark.*'[1] Lucretius grasps this principle of law in Nature as strongly as does any modern man of science.

It need not be pointed out that this conception of the regularity and orderly sequence of natural phenomena is the first thing indispensable towards a scientific view of Nature. But Lucretius makes the same mistake on this point as many modern scientific men—that, if anything is said to be done by the hand of God—if, for example, He answers prayer—thereby 'a law is broken.' 'If, in consequence of prayer, external Nature can be affected,' says the man of science, 'natural laws are thus at the mercy of man's volition, and no conclusion founded on their permanence is worthy of our confidence.'[2] So, to Lucretius, definite physical laws and the hand of God, acting in the world, seemed absolute contradictions. The possibility of connecting laws with a Divine power, with a God who 'thinks them progressively forth,'[3] seems never, even in the faintest, rudest shape, to have occurred to Lucretius. His only conception of Divine action is the polytheistic one of interruption and interference. Lucretius's attitude of mind in regard to this

[1] i. 592-597. Lucretius is constantly using the word *certus* to describe the *fixity* and *unchangeableness* of law, as manifested in the growth of natural productions. See the passages quoted in the chapter on Guyau's 'La Morale d'Épicure,' § 3.

[2] See Tyndall's essay on 'Prayer and Natural Law.' Tyndall's reasoning has been most searchingly examined by Dr. W. Ward. Dr. Ward's conception of a 'Divine pre-movement of events' is by no means a novel one, but he has worked it out with unusual force and grasp. I have tried to give some notion of his argument in the Appendix.

[3] Martineau.

forms a striking contrast to the instinctive God-consciousness of the Hebrew race, to whom the regularity of Nature which we call law carried with it the inevitable inference of a Divine Will manifesting itself in this orderly fashion.[1] To Lucretius this regularity suggests just the opposite inference.

Lucretius's second proposition, which completes the first, is that 'nothing is ever annihilated, but all things on their dissolution go back into the first bodies'—that is to say, matter is imperishable, and the total quantity of matter is never diminished.[2] Lucretius closes his proof of the doctrine, after his wont, by a picture of the working of this principle in Nature. 'The rains die when Father Ether has tumbled them into the lap of Mother Earth,' and in consequence the crops spring, the trees are covered with leaves and with fruit, men and animals are fed, the birds sing in the woods, the weak-limbed young of the herd gambol on the grass, 'intoxicated with the pure new milk,' and the children, human blossoms, make glad the city streets—

'Hinc lætas urbes pueris florere videmus'—

a picture of all that is most fresh and cheerful in the world. The rains have passed away and out of sight, but they are not lost. 'Therefore,' Lucretius concludes, 'nothing that seems to be lost is utterly lost, since Nature makes one thing afresh out of another, and suffers nothing to be begotten unless she has been recruited by the death of another.' The third

[1] Thus, to quote one example out of many, in Ps. cxlviii., of the sun, moon, and stars, 'He hath made them fast for ever and ever; He hath given them a law which shall not be broken.' This thought is expressed in a very simple and natural way in Lord Houghton's beautiful little poem, entitled 'Good Night and Good Morning.' A child is watching the sun setting like a big red ball. She says 'Good Night' to the objects round her, and to the creatures all hastening to their homes, but not to the sun—

'For she knew that he had God's time to keep
All over the world, and never could sleep.'

[2] i. 215-264.

proposition states the existence of void.[1] If there were no void, motion would be perfectly impossible in a world perfectly full of matter in its various forms, jammed together so that you could not insert a pin's point anywhere. Without void there could be neither motion, birth, nor growth. Again, 'why do we see one thing exceed another in weight, though it be no larger in size?' Bodies of the same bulk ought to weigh the same, but do not. How can this be, unless the one has more empty pores in it than the other? Therefore, 'void exists mixed up with the substance of bodies.' Exactly this explanation is at present given of the different specific gravity of different substances.

The next two are that all Nature is made up of atoms and void, and that nothing else but matter and void exists. All other things are either properties of matter, such as weight, heat, etc., or are accidents of matter, such as slavery, poverty, or time, which last we only apprehend by the succession of events. (Mind also is only an accident of matter, a corollary which he insists on in the third book, where he asserts, almost as if it were an axiom needing no proof, that mind is only a function of complexes of dead matter.) Therefore, 'besides atoms and void there remains in existence no third Nature existing by itself, none either of a kind ever to be discerned by our senses, or such as anyone can grasp by process of reasoning':

> 'Ergo præter inane et corpora tertia per se
> Nulla potest rerum in numero natura relinqui,
> Nec quæ sub sensus cadat ullo tempore nostros
> Nec ratione animi quam quisquam possit apisci.'

The last statement is so large one cannot but pause to consider it. Besides dead atoms and void, something else exists, we reflect, namely, the thinking mind which makes, accepts, or rejects this statement.[2] As one

[1] i. 329-369.

[2] 'Nature' is too generally taken as denoting the assemblage of phenomena external to and apart from the human mind,

realizes this astounding proposition, one asks, 'What of the Form?—what of the individual essence which makes everything what it is?' But Lucretius takes no count of this large question.[1]

We now arrive at the atom. All bodies, says the poet, come under two classes: they are 'partly first-beginnings of things, and partly those formed from a union (*concilium*) of first-beginnings.'[2] These first-beginnings of things are the Lucretian atoms. He also very often calls them 'seeds' or 'seeds of things,' and 'bodies' or 'first bodies'; and sometimes 'first principles' (*elementa*), 'shapes' as they are conceived to differ from each other in form, and 'matter' as that from which things are made.[3] Anticipating a little, we may here try exactly to picture to ourselves an atom as Lucretius conceives it. It is a little hard kernel, perfectly solid and inde-

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which none the less is one of the most important objects which presents itself to our perception. Hence arises a necessary imperfection. But a worse evil follows. 'Nature' taken in this limited sense, is often made use of to explain that which has been tacitly excluded from it. Thus it is that the facts and processes of reason are apt to be first ignored, in order that they may be afterwards treated as if the mere phenomena of irrational nature were sufficient to explain them.

'"Nature," in the broad sense of the word, is one great whole of which the mind of man forms part' ('Lessons from Nature,' by St. George Mivart (Preface), 1876).

[1] See the close of chapter ix.

[2] 'Corpora sunt porro partim primordia rerum,
Partim concilio quæ constant principiorum.
i. 483, 484.

[3] According to Munro, Lucretius uses the following terms, *primordia* or *primordia rerum*, which is his 'proper and distinctive name for the atoms'; *semina* or *semina rerum* or *genitalia semina rerum* (Anaxagoras also called his ultimate particles σπέρματα); *corpora* (answering to σώματα, which Epicurus appropriated to this special sense) or *corpora prima; elementa; figuræ* (a phrase borrowed from Democritus), and *materies*. On these terms and their Greek equivalents, see Munro on i. 55. Zeller has pointed out that, amongst other names for his atoms, Democritus uses ἄτομα ('Pre-Socratic Philosophy,' vol. ii., p. 219, 3, Eng. trans.).

structible. 'The first-beginnings of things no force can quench; they are sure to get the victory over it by their solid body.' Experience can give us no notion of such solidity. Everything we see around us in the world, however strong it may appear—iron, stone, brass—is yet destructible. Reason alone forces us to believe that the atoms are not. Ordinary bodies all have void within them; but first bodies are perfectly solid. Without void 'nothing can be either crushed or broken up, or cut in two' (*nec findi in bina secando;* Lucretius, who nowhere uses the word *atom*, by these words exactly translates the Greek ἄτομος). Without void, a thing cannot admit within it the destroyers, wet or cold or fire. Therefore the atoms, being impenetrable and indivisible, are indestructible. Lucretius is fond of calling them 'strong in their solid singleness'—

'Solida pollentia simplicitate.'[1]

This is the most characteristic epithet which he gives them. Each atom is a distinct, separate individual. Matter cannot be divided further, after you have reduced it to a collection of these individuals. Their 'singleness'—that meaning their distinctness of separate existence or individuality—is their strength. Though they enter into infinite fresh combinations, 'though stricken by countless blows through eternity,' they cannot be worn away. They are as perfect and fresh to-day as when the world was new. Each atom is perfectly hard, unchangeable, and everlasting. (Of the more accessory properties of matter, it is proved that Lucretius assumes them to be elastic.)

As to the composition of this little kernel, though extremely small, it yet has parts. Each of these parts is 'of a least nature,' so small that it never has existed separate by itself, and will at no future time be able so to exist, since by its very nature it is a part of the other.

[1] i. 574. Again, at i. 612:

'Æterna pollentia simplicitate.'

These parts appear to be quite identical with one another. Each part is a *minimum:* nothing can be smaller than this and yet exist. These parts have existed from eternity side by side in the atom; 'in a close-wedged mass they fill up the composition of the first body.' 'The first-beginnings are not compounded from the union of those parts, but are to be considered strong in everlasting singleness.'[1] Lucretius appears to have thought three the smallest number of parts that an atom could have. Apparently he seems to have conceived each 'part' as representing an angle or corner,[2] so that an atom with three parts would appear to be a three-cornered or three-sided figure. The atoms differ in shape and size, and consequently in weight also, which must be in proportion to their bulk. As to shape, the atoms are not every one of them 'possessed of an equal size and like shape with one another.'[3] They differ widely in form.[4] Some are smaller. 'The subtle fire of lightning is formed of smaller shapes,' and can pass through openings better than 'this our fire, which is born of wood and sprung from pine.' Light is formed of smaller atoms than those of horn, and can therefore pass through it. Some atoms have hooks by which they are fastened together, and come closer to each other. Hard things, like diamond, basalt, iron, are formed of such atoms. 'Things which look to us hard and close-textured must consist of atoms that are more hooked together, and must be held in union,

[1] 'Primaque et una
Inde aliæ atque aliæ similes ex ordine partes
Agmine condenso naturam corporis explent, . . .
Sunt igitur solida primordia simplicitate
Quæ minimis stipata cohærent partibus arte,
Non ex illarum conventu conciliata,
Sed magis æterna pollentia simplicitate.'
i. 604-612.

[2] See Munro's note on l. 600. Epicurus wrote a book, 'On the Angle of the Atom'—*περὶ τῆς ἐν τῷ ἀτόμῳ γωνίας.*

[3] ii. 333-477.

[4] *ἢ ἀγκιστροειδῆ, ἢ τριαινοειδῆ, ἢ κρικοειδῆ* (Plutarch, 'De plac. ph.,' i. 3). Is there any other authority for 'ring-shaped' atoms?

because welded together through and through out of atoms that are, as it were, many-branched. Amid this class in the foremost line stand diamond-stones, accustomed to despise blows, and stout basalt blocks,[1] and the strength of hard iron, and the brass bolts which scream out as they hold fast in the doors.'[2] Liquids are, as a rule, formed of smooth and round elements, but a sluggish fluid, like oil, may have its atoms 'larger or more hooked and intertangled' than those of wine. In general, things which gratify the senses are formed of smooth and round atoms; whatever is painful and harsh, its elements are more hooked and rough. Again, 'some elements are with justice thought to be neither smooth nor altogether hooked with curved points, but rather to have very small angles slightly projecting, so that they can rather tickle than hurt the senses'—for example, tartar of wine and elecampane. Apparently Lucretius supposes the different shapes of the atoms to result altogether from the position in which the least parts are placed within each. 'Every different arrangement of the parts yields a different manner of form of the atom.' But there is a limit to these differences: the number of shapes is finite,[3] but the atoms of each shape are infinite in number. Lucretius argues that there is not an infinite number of

[1] '*Silices* denotes the hard blocks of volcanic basalt with which the Romans paved their streets and roads.'—MUNRO.

[2] 'Denique quæ nobis durata ac spissa videntur,
Hæc magis hamatis inter sese esse necessest
Et quasi ramosis alte compacta teneri.
In quo iam genere in primis adamantina saxa
Prima acie constant, ictus contemnere sueta,
Et validi silices ac duri robora ferri
Æraque quæ claustris restantia vociferantur.'
ii. 444-450.

[3] ii. 478-494. In stating this, Lucretius supposes an atom formed of three least parts, and adds that 'you may increase them by a few more.' These words may be meant literally or not. It is calculated that from three parts 6 different shapes might be derived, from four 24, from five 120, from six 720, from seven 5,040.

differently shaped atoms, for if so, some atoms must be infinitely large. Moreover, some new kind of thing would be constantly coming into existence—something more brilliant, more beautiful, more fragrant, more melodious, or the opposite, than any before-existing thing.[1] Epicurus held that the number of different shapes, though not infinite, was inconceivably great. Lucretius merely proves that it must be finite. All atoms of the same shape are not necessarily of the same size. There are both greater and smaller among atoms of the same shape.[2] Again, some round atoms are smoother in surface than others also round.[3]

As to size, we must keep well in mind that the atom, as Lucretius conceived it, is a very tiny body. 'The whole nature of the first-beginnings,' he says, 'lies far beneath the ken of sense.' Early in the first book he proves, by illustrations to which we shall afterwards refer, that 'Nature works by bodies which are invisible.' This is why he so often uses the epithet 'blind'—that is, invisible—of the atoms and their movements. But he insists emphatically that the atoms are not infinitely small.

Lucretius did to a certain extent try to realize the size of his atoms. From his theory of sight, we see that he believed the atoms to be exceedingly small, as compared with the smallest visible object. According to Epicurus,

[1] ii. 478-521.

[2] Thus Lucretius tells us that 'the heavenly fire of lightning, subtle as it is, is formed of smaller shapes, and therefore passes through openings which this fire of ours cannot pass through, being born of logs and sprung from pine' (ii. 384-387)—these lines meaning that the atoms of fire are of the same shape (that is, spherical) as those of lightning, but larger (*cf.* vi. 225-227). The older atomists certainly held that atoms of the same shape differ in bulk. Democritus held that fire is composed of small round atoms. Theophrastus ('De Sensu,' c. 75) tells us that Democritus explained red as produced by the juxtaposition of atoms similar to those of fire, but larger: *ἐρυθρὸν δ' ἐξ οἵωνπερ τὸ θερμὸν, πλὴν ἐκ μειζόνων.*

[3] ii. 469.

sight is caused by a succession of images of any object striking on the eye. These 'images,' which are films so thin as to be utterly intangible, are made of atoms, and are constantly streaming from the surface of every object. 'In a moment of time there must be carried away from the surface of objects, images many in number, in many ways, in all directions round.'[1] These films, intensely thin,[2] never cease for a single moment to fly away from every object, and the air is ever full of them; but they are apparent only to the eye, and the substances which send them off show no trace of any loss. How small, then, must be the atoms forming such 'images.' Again, 'the mind perceives much thinner images' than the eyes can.[3] These images, which are seen by the mind's eye, whether in thought or in sleep, are infinitely finer even than those perceived by the eye; yet these mental images, too, are atomic. How infinitely fine, then, must be the atoms forming them. Again, says Lucretius, think of any very small living creature, and then of its entrails, or heart, or eye. Exceedingly small such an organ must be, yet it is formed of a number of atoms. Further, the animal life or soul of such an animalcule (according to Epicurean psychology the soul of any creature is vastly finer and lighter than its body), how almost inconceivably small, Lucretius reminds us, must the soul of such a creature be in proportion to its tiny body, yet its soul must be composed of many atoms.[4] Lucretius implies that the

[1] 'Sic ab rebus item simili ratione necessest
Temporis in puncto rerum simulacra ferantur
Multa modis multis in cunctas undique partis.'
iv. 163-165.

[2] 'Suptili prædita filo.'
iv. 88.

[3] 'Scire licet mentem simili ratione moveri,
Per simulacra leonem et cetera quæ videt æque
Nec minus atque oculi, nisi quod mage tenuia cernit.'
iv. 754-756.

[4] 'Come, now, and learn how thin is the nature of which an image is formed. First of all, since the first-beginnings are so

atoms may be even smaller than one would infer from such considerations. Lucretius's psychology, and, indeed, his whole system, of necessity demands that his atoms should be exceedingly minute :

'Corporibus cæcis igitur natura gerit res.'

Sir William Thomson says that if a drop of water could be magnified to the size of our globe, the molecules comprising it would appear to be of a size varying from that of shot to that of billiard balls. According to Clerk-Maxwell, about two million molecules of hydrogen placed in a row would occupy $\frac{3}{1000}$ inch, and a million million million million of them would weigh something more or less than 70 grains troy. We question whether Lucretius would have assented to his atoms being rated at so small a size as this. In conclusion, Lucretius denies to the atoms all secondary qualities, which he sharply distinguishes from essential properties.[1] They are colourless. They are not white or black or azure because existing things are white or black or azure. All colours can change into other colours, but that which changes is perishable, therefore the atoms are not endowed with colour. It *is* possible for us to conceive of atoms colourless, just as 'men who are born blind can yet recognize bodies by touch, though from the first they have never been associated in their minds with colour.' Neither have they sound, or scent, or warmth, or cold. All such qualities belong to things which are perishable, but 'they

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far below the ken of our senses, and so much less than those which our eyes first begin to be unable to see, learn in a few words how fine the germs of all things are. First, living things are, in some cases, so very small that their third part cannot be seen at all. Of what size are we to think the gut of these creatures to be, or their heart, or eyes, or their limbs, or any part of their frame ? How small are these ! What, then, must be the size of the several first-beginnings, whence their soul and the nature of their mind is formed ? See you not how fine they are, how minute!' (iv. 110-122).

[1] ii. 730-864.

must all be withdrawn from the first-beginnings, if we wish to assign for existing things imperishable foundations, for the safety of the universe to rest upon, that you may not have things returning altogether to nothing.' Lastly, the atoms are void of sense—mere dead matter.[1] Thus all their characteristics are here summed up. This, then, is the Lucretian atom, tiny yet so strong. After it has taken part in innumerable combinations, which have been formed and broken up and formed again, it remains fresh and perfect as ever.

It is interesting to know what was the reasoning by which Lucretius arrived at the result of ultimate atoms and their properties. He gives nine or ten arguments[2] to prove either that there are atoms 'of solid singleness,' or that the atoms are indestructible: merely two forms of expressing the same statement. His reasoning is somewhat as follows:

In the first place, Lucretius holds that, admitting the existence of matter and void, each of these must of necessity exist 'by itself and unmixed.' For, wherever void is, there matter cannot be; and wherever body is, there void cannot be. That is to say, from the existence of void, absolutely empty space, Lucretius infers the existence of its opposite, the not-void, perfectly solid matter. Again, things, it is admitted, have all void within them; but how could they hold it in and continue to keep it within them unless their substance was perfectly solid, pure, unmixed matter? Thirdly, having no void within them, the atoms must be indestructible. (Here Lucretius incidentally throws out a proposition as to the destructibility of bodies. The reason why bodies of any kind are destructible is that they are not perfectly solid. 'The more of void anything contains within it, the more completely does it give way before any assault.') It is here—in its perfect solidity—that Lucretius's atom differs most from that of modern chemists, who, as Professor Clifford says, explain the hardness of solid matter

[1] ii. 865-990. [2] i. 498-634.

'by the very rapid motion of something which is infinitely soft and yielding.' Lucretius has no notion of this. He argues next that, admitting solid atoms, you can explain the existence of soft bodies, such as air, water, earth, by the admixture of void; but if your atoms are destructible and soft, how can the existence of hard bodies, like basalt and iron, be explained? On the other hand, assuming the atoms to be solid, their closer union will account for the utmost strength exhibited by any substance.[1] Moreover, Lucretius is persuaded that, as Professor Jenkin puts it, there is an immense 'wear and tear going on' in Nature. If the atoms were at all frail, 'it is not consistent that they could have continued from eternity, though stricken and tossed about for ever by countless blows.' To sustain these fearful shocks, the strain of eternal combinations from atoms to things, and dissolutions from things back to atoms—'under that strong pressure within the very jaws of death,' Lucretius says[2]—there must be indestructible first-beginnings.

The sixth reason is an important one. We give it at more length, and in the poet's own words: 'Had Nature set no limit to the breaking of things, the bodies of matter would by this time have been reduced so far by the breaking of past time, that nothing could be conceived out of them, and reach its full growth within a fixed time.' 'But now, without doubt, a limit has been set to their breaking, and abides sure, *since we see each thing produced afresh, and, at the same time, well-defined periods fixed for things, each after its kind, to reach the flower of their age.*' That is to say, we see in all the productions of Nature that matter obeys definite unchanging laws; therefore, in order to produce these regular results, the

[1] 'Sunt igitur solida pollentia simplicitate,
Quorum condenso magis omnia conciliatu
Artari possunt validasque ostendere viris.'
i. 574-576.

[2] 'Nam quid in oppressu valido durabit eorum,
Ut mortem effugiat, leti sub dentibus ipsis?'
i. 851, 852.

ultimate basis of matter must be definite and unchangeable. Thus Lucretius deduces this property of the atoms from his great principle of law in Nature, as illustrated by the regular periods within which growth and life go on. Lucretius justly feels the last to be a strong argument, and he repeats it in a slightly varied form : ' Since there abides a limit of growing and retaining life, assigned to things, each after its kind, and since by the laws of Nature it stands inviolably decreed what they each can do and cannot do, and since nothing is changed, but all things are so constant that the different kinds of birds, all without intermission, exhibit on their body the distinctive marks of their species, they must, without doubt, also have their bodies formed of unchangeable matter. *For if the first-beginnings of things could in any way be vanquished and changed, it would then be uncertain what could and what could not spring into being ; in short, on what principle each thing has its properties fixed, and its deep-set boundary mark ; nor could the generations so often reproduce, each after its kind, the nature, habits, way of life, and motions of the parents.*'[1] Thus he again deduces the properties of the invisible atoms from the character of existing things which we can see—for do not these re-

[1] ' Denique iam quoniam generatim reddita finis
Crescendi rebus constat vitamque tenendi,
Et quid quæque queant per fœdera naturai,
Quid porro nequeant, sancitum quandoquidem extat,
Nec commutatur quicquam, quin omnia constant
Usque adeo, variæ volucres ut in ordine cunctæ
Ostendant maculas generalis corpore inesse,
Inmutabili' materiæ quoque corpus habere
Debent nimirum. Nam si primordia rerum
Commutari aliqua possint ratione revicta,
Incertum quoque iam constet quid possit oriri,
Quid nequeat, finita potestas denique cuique
Quanam sit ratione atque alte terminus hærens,
Nec totiens possint generatim sæcla referre
Naturam, mores, victum, motusque parentum.
i. 584-598.

The terms *reddita constat, sancitum extat,* are intended specially to denote the fixity of natural law.

present the powers of the atoms? From the constancy of all the phenomena of Nature (as illustrated by the distinctive marks, habits, and motions of the various species of living things), he infers that the atoms are unchangeable. Lastly, if Nature allowed of division beyond the atom, if matter were infinitely divisible, then nothing could be reproduced out of such least parts, because particles which are infinitely small 'cannot have the properties which birth-giving matter ought to have—that is to say, the various entanglements, weights, blows, clashings, and motions, by means of which things severally go on.'[1] Exactly to the same effect Clerk-Maxwell says: 'We do not assert that there is an absolute limit to the divisibility of matter: what we assert is, that after we have divided a body into a certain finite number of constituent parts called molecules, then any further division of these molecules will deprive them of the properties which give rise to the phenomena observed in the substance.'[2] Thus Lucretius reasons with perfect consistency from the eternal youth of Nature, the freshness and perfection of all natural objects, generation after generation and growth after growth, to the indestructibility of the atoms forming them. He sees in the 'solid singleness' of the atoms an adamantine wall against which death and decay recoil—an eternal barrier-line which reason discerns looming far, far beyond the phenomena of the changing world. This alone, he believes, saves Nature from degeneration.

It has repeatedly been asserted, though not by writers of weight, that the atomic theory of Democritus and Lucretius was a 'mere guess.'[3] I think that hardly any-

[1] i. 628-634.

[2] 'Theory of Heat,' p. 285, quoted by Munro.

[3] Thus even W. K. Clifford says: 'The atomic theory of Democritus was a guess, and no more than a guess. Everybody around him was guessing about the origin of things . . . but he happened to make a guess which was more near the right thing than any of the others' ('The First and the Last Catastrophe,' *Fortnightly Review*, April, 1875, p. 466).

one who has read attentively the above abstract of Lucretius's argument will agree to the statement that his atomic theory is but 'a guess.'

This theory of Lucretius that there really are such things as atoms, ultimate indivisible particles of matter, is now accepted. The modern chemist believes also, like Lucretius, in a limited number of different atoms, from each of which he supposes an elementary chemical substance to be composed. It is indeed strange to think what could have first suggested to any man's mind a theory so different from what the senses tell us. It has been thought by some a mere conjecture, suggested by the sight of the sunbeam kindling the countless motes afloat in the air. Lucretius's arguments prove at once that this cannot be. A single glance at the principal reasons by which modern science has arrived at the atom, enables us to see how just Lucretius's reasoning was. We may give the general principle in Newton's own words: 'All things considered, it seems probable that God, in the beginning, formed matter in solid, massy, hard, impenetrable particles, of such sizes, figures, and with such other properties, and in such proportions to space, as most conduced to the end for which He formed them.' 'While the same particles continue entire, they may compose bodies of one and the same texture in all ages; but should they wear away or break in pieces, the nature of things depending on them would be changed. Water and earth composed of old, worn-out particles would not be of the same nature and texture now with water and earth composed of entire particles in the beginning. And, therefore, that Nature may be lasting, the changes of corporeal things are to be placed only in various separations, and new associations and motions of these permanent particles.' Balfour Stewart uses language that might have come from Lucretius himself when he says: 'A simple elementary atom is a truly immortal being, and enjoys the privilege of remaining unaltered and essentially unaffected by the powerful

blows that can be dealt against it.'[1] Thus we are justified in conceiving of the atoms as 'the foundation-stones of the universe,'[2] which amid all the changes of matter ever remain 'unbroken and unworn.'

Therefore the song of Nature over her task is :

> 'No ray is gone, no atom worn,
> My oldest force is good as new,
> And the fresh rose on yonder thorn
> Gives back the bending heavens in dew.'

If it were not so, were there not indestructible atoms, the rose that opened its dewy leaves to the sun this morning could not be as fresh and pure and fragrant as the first rose that ever opened its petals on this earth ; sunlight and air could not be as bright and fresh, the human form as fair, all the world as beautiful, life as keen, and the longing in the heart of the youth to enjoy existence to the full as strong as it was a thousand years ago. Lucretius saw as clearly as Newton did that, while the atoms hold fresh and unalterably 'strong in their everlasting singleness,' though the bodies they compose should waste away, still, completely fresh and new ones, as strong and as perfect, may be formed when they unite again.

The laws of chemical combination furnish a most powerful argument, and clearly prove that the atoms are unalterable. The chemist finds, for example, that oxygen produced from any source—from air, water, or rocks of any geological period—and hydrogen produced from any source, such as water, coal, or meteoric iron, combine together, always in exactly the same proportions—namely, two parts by volume of hydrogen with one of oxygen—to form water. He asks then confidently, 'if during the whole previous history of either specimen, whether imprisoned in the rocks, flowing in the sea, or careering through unknown regions with the meteorites, any modification of the molecules had taken place,' is it possible that these two gases could combine always in exactly the same proportions ?[3] Decidedly they could

[1] 'Conservation of Energy,' p. 7. [2] Clerk-Maxwell.
[3] See Clerk-Maxwell's Lecture on 'Molecules.'

not. The spectroscope, again, proves that molecules of any element, such as hydrogen, always give exactly the same set of periods of vibration; but if the little particles which vibrate at exactly this speed could be broken or altered in any way, they could no longer vibrate at this certain fixed speed, and thus produce the corresponding line in the spectrum which is the sign of hydrogen. (Lucretius, by the way, would not have allowed the possibility of vibration, implying internal movement, in his atoms.) Both the last examples are only special applications of the same general principle which Lucretius realized so clearly, and would, as such, have been welcomed warmly by him. That principle is, that 'if matter really obeys definite, unchangeable laws, the ultimate materials employed to make matter must themselves be definite and unchangeable.'

Clifford uses the following illustration in proof that the doctrine of atoms must no longer be called a theory, but is a simple statement of the facts. Imagine, he says, a room full of fiddles hanging up with strings tuned to vibrate to certain notes. Sing one of those notes, all the fiddles answer. Compress the fiddles so that they are in contact, they will not answer to the notes. Bring them closer, but still so as not to be in contact, they will again answer exactly to the note as before. So, if we compress a gas within certain limits, the rate of vibration which belongs to the gas is still not altered. This shows that the rate of vibration does not belong to it as a whole, but belongs to the individual parts of it. 'By such reasoning as this,' he continues, 'it seems to me that *the modern theory of the constitution of matter is put upon a basis which is absolutely independent of hypothesis. The theory is simply an organized statement of the facts.*'[1]

[1] A strong proof of the existence of molecules is furnished by Crookes's radiometer. This consists of four vanes with discs blackened on one side, the whole enclosed within a glass vessel almost exhausted of air. When rays of light or heat fall on the vessel, the remaining molecules of air, striking on the blackened and warmer sides of the vanes, become heated, and rebound against the vanes with greater velocity so as to drive them round.

Many years later Professor Rücker speaks to the same effect :[1] 'The atomic theory imparts a unity to all the physical sciences which has been attained in no other way. . . . The physicist, if he keeps to his business, asserts as the bases of the atomic theory nothing more than that he who declines to admit that matter consists of separate moving parts must regard many of the simplest phenomena as irreconcilable and unintelligible, in spite of the fact that means of reconciling them are known to everybody—in spite of the fact that the reconciling theory gives a general correlation of an enormous number of phenomena in every branch of science, and that the outstanding difficulties are connected not so much with the fundamental hypothesis that matter is composed of distinguishable entities which are capable of separate motions as with the much more difficult problem of what these entities are. . . . If no other conception of matter is possible than that it consists of distinct physical units—and no other conception has been formulated which does not blur what are otherwise clear and definite outlines—if it is certain, as it is, that vibrations travel through space which cannot be propagated by matter, the two foundations of physical theory are well and truly laid. It may be granted that we have not yet framed a consistent image either of the nature of the atoms or of the ether in which they exist ; but I have tried to show that, in spite of the tentative nature of some of our theories, in spite of many outstanding difficulties, the atomic theory unites so many facts, simplifies so much that is complicated, that we have a right to insist—at all events, till an equally intelligible rival hypothesis is produced—that the main structure of our theory is true : that atoms are not merely helps to puzzled mathematicians, but physical realities.'

In popular lectures and in newspapers we have been told of late that the discovery of radium involves 'the downfall of the atomic theory.' One cannot help asking, 'How far is the atomic theory affected by that dis-

[1] In his address as President of the British Association in 1901,

covery? Must we no longer believe in Lucretius's "atoms of solid singleness?"'

In answer to an inquiry, a distinguished chemist, Professor F. R. Japp, after pointing out that at present theory has far outrun experiment in regard to the new knowledge in chemistry, writes as follows:

'However, the production of helium from radium has been repeated by several experimentalists, and is established, I think, beyond all possibility of doubt; and it seems in the highest degree probable that the α-particles discharged from radium are merely helium atoms shot off from the disintegrating radium atoms. I think, therefore, that the disintegration theory of radio-activity may be regarded as fairly well established, and in that case the "atoms of solid singleness" must be given up—in fact, the term "atom" becomes a misnomer as applied to the atoms of the radio-active elements. But is it possible to stop at the radio-active elements? The periodic law clearly shows that the atoms of the different elements are all members of one family, and it is difficult to assume differences in kind between them. Such differences as there are are probably only differences of degree; hence one would incline to assume that the atoms of all known elements are spontaneously disintegrating, but some of them with such extreme slowness that we cannot detect it.

'Chemists have for the past thirty years, at least, been prepared for some such modification of the older views regarding atoms. The periodic law and spectrum analysis together indicate that atoms of different elements belonging to a particular group are built up on the same general scheme, and a study of the spectra in particular suggests that the atoms are exceedingly complex structures.

'To chemists and physicists the essence of the atomic theory does not lie in the unchangeableness of the atoms, but in the fact that the phenomena dealt with by chemistry and physics can only be interpreted satisfactorily on the assumption that matter consists of discrete particles—that it is discontinuous. No chemist or physicist of

standing that I have heard of has suggested that these recent discoveries involve the abandonment of the atomic theory. We have only to go a little further down for our ultimate particles : at present they are the electrons —if there is anything ultimate in science. . . . So far from the atomic theory being abolished, I consider that Crookes's spinthariscope, which shows the individual flashes of light produced when each *a*-particle (helium atom) is shot off from a small quantity of radium and impinges on a phosphorescent screen, does the same thing for the atomic theory that Foucault's pendulum experiment has done for the rotation of the earth.'[1]

Some of Lucretius's assertions regarding the atom may appear rather arbitrary—for example, the statement that atoms have parts. His conception apparently is, that anything which has extension and exists in space must have parts. Intellectually we can conceive these parts, though really the atom is indivisible. 'A first and single part and then other and other similar parts in succession fill up in close-serried mass the entire constitution of the atom. Since these parts cannot exist by themselves, they must needs cleave to that from which they can in no wise be torn away. First-beginnings, therefore, are of solid singleness, massed together and cohering closely by means of least parts, not compounded out of a union of these parts, but, rather, strong in their everlasting singleness. From the atoms Nature no more allows anything either to be torn loose or to be worn away, reserving them as seeds for things.'[2]

[1] From a letter dated May, 1906.

[2] 'Pars primaque et una
Inde aliæ atque aliæ ex ordine partes
Agmine condenso naturam corporis explent
Quæ quoniam per se nequeunt constare, necessest
Hærere unde queant nulla ratione revelli.'
i. 604-608.

'*Ex ordine*, having each so existed without possible shifting of position' (Munro). On the parts of the atom, see also ii. 483-494.

Thus, the individuality of each several atom, as Lucretius conceives it, is like human individuality in its distinctness. Perhaps by describing the parts of the atom as cohering closely without any intervals of void, he meant his reader to realize strongly how different is the atom in structure from matter as we have experience of it. But he offers no proof of this dogma, and his acceptance of it from Epicurus simply shows how closely he followed his master in the domain of physics. On the remarkable hypothesis of atoms with 'hooks,' Newton comments thus: 'The parts of all homogeneous hard bodies which fully touch one another, stick together very strongly. And for explaining how this may be, some have invented hooked atoms, which is begging the question.'[1] It is certainly difficult to conceive of atoms, encumbered with such an apparatus as hooks and eyes, being indestructible. Perhaps it is easiest to conceive of round atoms being indestructible. Professor Veitch criticizes the notion of hooked atoms much to the same effect as Newton. 'These conceptions,' he says, 'are obviously simply and rudely mechanical. They may be taken as, at the utmost, very dim foreshadowings of gravity and cohesion. The ideas of polar attraction and repulsion and of chemical affinity have no place.'[2] The conception of atoms with hooks attaching them to each other is, no doubt, rude enough, as Professor Veitch remarks, but as a metaphor, it is not beneath the use of modern science, as the following passage shows: 'Suppose we were to begin teaching chemistry by saying that carbon is made up of atoms which have four hooks or hands by which they can hold on to other atoms; that oxygen atoms have two hooks and hydrogen atoms one. Consequently, we can hook two hydrogen atoms to an oxygen atom, and this makes water; or we can hook two oxygen atoms to a carbon atom, making carbonic acid; or we can hook four hydrogen atoms to a carbon atom, making marsh gas. . . . These

[1] Newton, 'Optics,' p. 251 (Horsley).
[2] See his pamphlet, 'Lucretius and the Atomic Theory,' p. 39.

statements belong to the doctrine of atomicities. Nobody doubts that the statements represent, in highly metaphorical language, real facts of chemical action.'[1] Further, we may ask in passing, is it correct to say that Lucretius has no notion of chemical affinity? If the interpretation of the term *concilium*, offered further on, be correct,[2] he had, at all events, some faint notion of it.

Having arrived at the atom, Lucretius proceeds to discuss rival theories as to what is the original element of all things. The Epicurean criticism of other systems was by no means of the fairest nor yet of the best-informed, as we see when Lucretius utterly misrepresents the 'fire' which Heraclitus assumes as the sole element of things, by discussing it as if it were ordinary fire. On no other system is Lucretius so severe as on that of Heraclitus, whose popularity he scornfully explains by the fact that 'fools like dark sayings.'[3] The reason of so great a passion against this philosopher is not hard to find. The physical system of the Stoics, the enemies of Epicurus, was derived from Heraclitus. Lucretius professes to see very clearly where all systems that conflict with his own are defective. Their founders 'have gone to wreck on the first-beginnings of things, and there, though great, they have fallen with great downfall.' Here it is necessary to refer only to his elaborate and vigorous refutation of Anaxagoras. One doctrine of Anaxagoras, adopted by the Peripatetics, was in direct hostility to his own theory. In combating it, Lucretius defends the Epicurean side in a controversy of the day. Anaxagoras and the Peripatetics held that the parts of a body are in every respect similar to the whole; that flesh is formed of minute fleshes, blood of minute drops of blood, earth of minute earths, gold, water, of minute

[1] Professor Clifford's 'Essays and Remains,' vol. ii., p. 307.

[2] See Chapter VI.

[3] Contrast with this opinion of Heraclitus the estimate of Professor Ferrier—'the deepest, probably, if also the darkest, of all the thinkers of antiquity' ('Lectures on Greek Philosophy,' § 4).

particles of gold and water. This doctrine (with other similar ones) was called in later times Homoiomereia—that is, the 'likeness of parts (to the whole).' It is not hard to see why the atomic theory is at enmity with this. If the one holds, the other must utterly fall to the ground. Suppose you take a grain of earth and divide it again and again. So long as the parts are visible, they possess properties similar to the whole grain. They are still recognizable as earth. Even after the parts are so small as to be no longer visible, we can still conceive of the process being carried on by some finer instrument. The question then occurs, Can this subdivision be repeated for ever? The atomists answer, It cannot. After it has been divided a certain number of times you will come to parts extremely small, which are impenetrable, no longer divisible, things which cannot be cut—that is to say, atoms. According to Anaxagoras, on the other hand, this process may be repeated for ever. Every smallest subdivision of the grain of earth is still like the whole grain, and you may repeat the process of division without ever coming to an end. Thus the two doctrines were in direct hostility.

Lucretius now proves at length that matter and space must both be infinite. If there be limits to the universe, then all matter must long ago have collected in a heap on the floor of the limited space. So, too, he will not hear of a centre of the universe towards which all things tend. 'There can be no centre [where the universe is] infinite,'[1] and if there were one, he continues, there is no reason why things should be attracted any more than repelled by it. In this point Epicurus stands in marked opposition to Aristotle, whose whole conception of the universe is based upon the notion that it has a centre which is the goal of all motion. Matter, too, must be infinite. If space were infinite and matter finite, in the first place the atoms could never have been able to combine so as to produce anything, but would have been

[1] i. 1070.

carried apart and scattered throughout the infinite void. Thus the atoms fit to produce the world could never have come together. While the number of shapes of the atoms is limited, there is an infinite number of atoms of each shape. Did there exist only one single creature of its kind, 'with a body which had birth and no other in the whole world resembling it,' still the supply of matter must be infinite before even this single creature[1] could grow up and be nourished. Here Lucretius introduces one of those illustrations which are so close to the fact, and also so appeal to our imagination. Suppose that the atoms of the kind needed to form any particular substance were finite in number, 'whence, where, by what force, and in what way shall they meet together and combine in so vast an ocean, in such a confusion of foreign atoms? They have, as I opine, no means of forming a generative union; but, as when great and many shipwrecks have taken place the great sea is wont to tumble about rowers' benches, rudders, sail-yards, prow, masts and oars, all tossing about so that along all the shores the carved ornaments of the poops are seen floating, a sign and a warning to mortals that they may take heed to avoid the snares and violence and treachery of the faithless sea, and never at any time, when the blandishment of ocean smiles treacherous, trust to it—even so,' if any one kind of atoms be finite, the 'opposite currents of matter' must scatter them about for ever so that they can neither unite nor yet, if they could, remain in union and increase.[2] The heaving ocean of atoms not only has its boiling tides and seethes furiously like the sea, but, like it, it wrecks whatever is not strong enough to resist it. Another reason introduces one of the most characteristic conceptions of Epicurean science. According to Epicurus, there is a continual waste going on in the world. It is an organism which is continually losing part of its sub-

[1] Not only an animal, but any singly-existing mass of any one substance, is included in the statement.

[2] ii. 522-568.

stance by natural waste, and, moreover, the 'blows' of the atoms which keep constantly beating on every substance tend to weaken it and break it up. Further, 'the air lying round about always beats on things,'[1] and helps to wear them out. 'All things perish when they have been rarefied by the ebb of particles, and succumb to blows from without,' since 'the atoms never cease to destroy all things by battering them from without, and to attack and overpower them by blows.'[2] In consequence of this loss of substance, and of the inroads made by attacking forces, the world requires to be fed by a fresh stream of atoms, constantly flowing in from the infinite void. 'As the constitution of living creatures, when deprived of food, loses substance and wastes away, even so the world must be dissolved as soon as the supply of matter has ceased, having become in any way diverted from its course.'[3] The mere impact of the ever-moving atoms, beating on the world from with-

[1] vi. 1028. *Cf.* iv. 932-934.

[2] ii. 1143-1147. Lucretius speaks at times of these 'blows' as helping to hold the world in existence, as at ii. 528-531 :

> 'Probavi
> Versibus ostendens corpuscula materiai
> Ex infinito summam rerum usque tenere
> Undique protelo plagarum continuato.'

'I have shown that the minute bodies of matter do continually uphold the world through an unbroken succession of blows on all sides.' The word *protelo* 'appears to denote a number of draught-oxen, yoked one in front of the other, and advancing by even, successive pulls ; hence it well expresses the effect produced by the continuous succession of blows of atoms' (Munro). In such a passage as this 'blows' stands for its result—viz., the supply of fresh matter, which, without these atomic collisions, could not rise upwards to feed the world. The reasoning of i. 1041-1051 is conclusive as to this.

[3] 'Nam veluti privata cibo natura animantum
Diffluit amittens corpus, sic omnia debent
Dissolvi simul ac defecit suppeditare
Materies, aliqua ratione aversa viai.'
i. 1038-1041.

out like the shock of waves on the side of a ship, is not simply and merely destructive. To a certain extent Lucretius thinks it may even help to hold things together, for a time,[1] but if this great world is to maintain its being and action, it must be constantly fed with matter from the infinite sum without—a precarious condition, for how easily might the supply of matter 'somehow lose its way' in the immensity of the void!

'Materies aliqua ratione aversa viai.'

(As we shall see, the direction of these atoms coming to feed the world is *upwards*.[2]) In consequence of collision, the atoms which naturally fall downwards are forced up, but there can be no constant succession of upward-streaming atoms unless matter be infinite. The medium through which this loss and gain come to things is the air: 'Whatever ebbs from things is all borne into the great sea of air, and it in return gives back particles to things.'[3]

This notion of a loss of Energy constantly going on from the world has much in common with the scientific doctrine of the Dissipation of Energy. Thus Professor Balfour Stewart shows that each form of energy is not capable of being transformed directly, so far as we know at present, into every other form. Thus, for instance, energy of visible motion cannot be *directly* transformed into energy of chemical separation or into radiant energy. The fact that heat can only be transformed into mechanical energy subject to a certain condition, shows us that there must be constantly going on a Dissipation of Energy. So 'if we could view the Universe as a candle not lit, then it is, perhaps, conceivable to regard it as having been always in existence; but if we regard it rather as a candle that has been lit, we become abso-

[1] 'Blows from without cannot hold together all the sum' (*i.e.*, this world), though 'they can frequently strike upon and detain a part, until others come, and the full sum of matter can be completed' (i. 1042-1045). (*Plagæ* occurs in two different meanings at ll. 1042 and 1045.) On this subject, see ii. 1105-1150.

[2] See p. 134 and note. [3] v. 275-278.

lutely certain that it cannot have been burning from eternity, and that a time will come when it will cease to burn.'[1] Thus Lucretius's belief that old age and death must necessarily come to the world when its waste becomes greater than its supply, is not without scientific basis.

What, then, would be the consequence supposing the influx of atoms from the infinite were to stop? Lucretius states it thus: 'Swift as flame the walls of the world would suddenly break up and fly asunder along the mighty void, and for the same reason all other things would follow: all the heaven from its inmost quarters would tumble down, and in an instant the earth slide from beneath our feet and wholly pass away along the boundless void, the ruins of the heaven and of earthly things all wildly mixed, and the atoms unloosed from their bonds of union, so that in a moment not a wrack shall be left behind, nought save lone space and the unseen first-beginnings. For on whatever side atoms shall first be wanting, this side will be the gate of death for things in being.'

It is curious how often Lucretius refers to the destruction of the world.[2] The earth, he says, is ceasing to bear with its former fertility: it is manifestly grown old. Even his own generation, he thinks, may see the end of all things.[3] Its existence has been imperilled in the past, he tells us, by earthquake, volcano, and flood, which have swept away whole nations. But a little more was needed to destroy it altogether. 'When the world was being tried by so great diseases and so great dangers, at that time had but a more disastrous cause pressed on them, far and wide it would have gone to destruction and mighty ruin.'[4] But the world is also exposed to

[1] 'Conservation of Energy,' chap. v.

[2] See i. 1102-1113; ii. 1148-1174; v. 91-109, 338-346, and 364-375.

[3] 'Sed tamen effabor: dictis dabit ipsa fidem res
Forsitan et graviter terrarum motibus ortis
Omnia conquassari in parvo tempore cernes.'—v. 104-106.

[4] 'Nam cum res tantis morbis tantisque periclis
Temptarentur, ibi si tristior incubuisset
Causa, daret late cladem magnasque ruinas.'—v. 345-347.

danger from without. 'There is no lack of atoms which any day by chance may rise up and gather together from the infinite and wreck the sum of things with one wild storm or bring upon it some perilous disaster: nor is there any lack of space or deep void whereinto the walls of the world may be scattered, or they may be assailed by some other force and perish.[1] Therefore the gate of death is not closed against heaven, nor sun, nor earth, nor the deep waves of ocean: open wide it stands; vast-yawning, it waits for them.'[2]

No doubt the frequency of severe earthquakes and volcanic eruptions in Italy and Sicily may have impressed him vividly, and led to such anticipations.[3] But there were far more cogent reasons in his own theory of Nature. Lucretius seems to have been keenly conscious of the truth that a chance-made world could not well be permanent, that the chance-moved atoms might fly from their orderly combination and undo the world even more readily than they had joined to upbuild it. Considering that he held such a theory of the world's origin, must he not, indeed, have been surprised that the torrent

[1] This may refer to collision with some other world, or with its wreck when broken up.

[2] v. 366-375. In this passage the lines—

> 'Neque autem corpora desunt,
> Ex infinito quæ possint forte coorta,
> Corruere hanc rerum violento turbine summam
> Aut aliam quamvis cladem importare pericli'

remind us of the remarkable theory of 'Spontaneity-in-things,' attributed to Epicurus by M. Guyau. Such an insurrection of atoms out of the infinite *might* be conceived thus to arise and imperil the world in consequence of the power of declination, since atoms in the void are not subject to the laws which restrict and nullify atomic declination in masses of matter. In a storm of wandering atoms 'Spontaneity' would be a mighty and dangerous force.

[3] 'They told us, if I remember, that they had an earthquake on this part of the coast of Italy about once every five years. Italy is a land of volcanoes, more or less subdued. It is a great grapery, built over a flue' ('Lord Byron and his Contemporaries,' by Leigh Hunt, chap. iv.).

of atoms had not burst loose many a year before? For in a world of purely atomic origin, must not any rent or flaw grow ever wider and deeper, with accelerating increase? for where is there any recuperative power, once the elaborate atomic combination has met with any jar or crack? Such a world resembles in its structure a great many-sided crystal which, so soon as the slightest flaw has touched it, at once falls into fragments and dissolves. If a world like this had yet held together for so long, must not its destruction have seemed to Lucretius now inevitably nigh at hand?

Moreover, Lucretius conceives the world as liable to destruction because it exists only in virtue of a certain balance[1] or equipoise of natural forces. In part the atomic motion tends to preserve things in being, and in part it tends to break them up. These opposing principles show themselves visibly every day around us in birth and death, in growth and decay, but they are at work everywhere. Thus, mightiest forces, attacking it within and without, are ever seeking to destroy the world —forces as mighty are ever at work combating these and restoring their inroads. So long as this balance of warring powers holds—so long, at least, as the destructive forces do not gain the upper hand—so long the world will last.

> 'Sic æquo geritur certamine principiorum
> Ex infinito contractum tempore bellum.'[2]

But this warfare may at any time come to a close.

The first book concludes with these words:—to the disciple who will earnestly ponder his teaching 'one thing shall grow clear after another, nor shall the blind night rob thee of the road that thou see not to the full the most secret ways of Nature: so truly will one thing light the torch for another.'

[1] The principle illustrated by this equilibrium of antagonistic forces is an important Epicurean doctrine, under the name of *ἰσονομία*, or 'balance.' See Appendix B.

[2] ii. 573, 574.

CHAPTER VI

THE ATOM OF LUCRETIUS—*continued*

THE second book begins with the well-known lines, *Suave, mari magno*—

> ' 'Tis pleasant, when the seas are rough, to stand,
> And see another's danger, safe at land.'[1]

Of course Lucretius hastens to explain that this is 'not because it is delightful or a pleasure at all that anyone should be in distress, but because it is sweet to see dangers from which you yourself are free. It is sweet, too, to see great armies arrayed on the plains struggling in combat without yourself sharing in the danger. But,' Lucretius continues, 'nothing is more pleasant than to occupy the calm high places of philosophy, that are well defended by the learning of the wise, whence you may look down and see others, wandering hither and thither, and going far astray in their search for the way of life, see the contest of intellect, the rivalry of rank, the striving night and day with exceeding toil to struggle to the height of power, and be masters of the world. O wretched minds of men! O blind souls! not to see in what darkness of life and in how great dangers is this little term of life spent, not to see that Nature demands nothing else than for the body to be free from pain, and the mind to enjoy a sense of pleasure free from care and fear.' Of course the 'way of life' is that pointed out by Epicurus, the *only* path of safety for men. Afterwards in some splendid pictures Lucretius proceeds to show how little wealth or birth or kingly

[1] Creech.

power can deliver men from care and fear. Reason alone can do this. He concludes: 'For just as children in the blind darkness are frightened and dread everything, so we in broad daylight fear at times things which are not a whit more to be dreaded than those which children shudder at in the dark and fancy to be there. This terror, therefore, and darkness of the mind must be dispersed, not by the rays of the sun and the bright arrows of day, but by beholding the face of Nature and her law.'[1]

We are afraid with a childish fear because we know not the causes of the things we see around us in Nature. This ignorance is the 'thick darkness of the mind.'

The feeling described in the first lines of this passage is a somewhat selfish one.[2] Very unfairly, however, has it been named 'the Lucretian pleasure.' It does, indeed, stir the imagination to behold danger from a place of safety far away; but it is only a cowardly, sentimental soul that can actually enjoy the sight of danger that it would not face itself. Lucretius, we are convinced, would rather have plunged into the waters

[1] 'Nam veluti pueri trepidant atque omnia cæcis
In tenebris metuunt, sic nos in luce timemus
Interdum, nilo quæ sunt metuenda magis quam
Quæ pueri in tenebris pavitant finguntque futura.
Hunc igitur terrorem animi tenebrasque necessest
Non radii solis neque lucida tela diei
Discutiant, sed naturæ species ratioque.'
ii. 55-61.

(*Species* has the sense of *visus*, as at i. 321.) We may compare vi. 50-55:

'Cetera quæ fieri in terris cæloque tuentur
Mortales, pavidis cum pendent mentibu' sæpe,
Et faciunt animos humilis formidine divom
Depressosque premunt ad terram propterea quod
Ignorantia causarum conferre deorum
Cogit ad imperium res et concedere regnum.'

[2] Even were this statement unconditional, far, far more horrible, far more pagan, is the saying of Aquinas: 'Beati in regno cælesti videbunt pœnas damnatorum ut beatitudo illis magis complaceat.' Does the Church still inscribe this sentiment in her books as orthodox?

to save a life at the cost of his own, than stand passive, to enjoy a thrill of poetic sensation at the cost of drowning men. Rather are these the words of one who cries to others still in the storm, 'I have found the shelter—come!' Lucretius does but use this as an illustration from which he may pass to the bold figure of the mountain-tops on which the Epicurean stands. There is something very characteristic in the next lines. Sometimes we hear much the same language in our own day from men who have rejected the old instinctive beliefs in God and the Hereafter—who boast a new creed superior to the common creed of men. Occasionally they look down on the belief of the many with just such a calm and confident disdain as this; but their hearts are not warm enough for the pity which in Lucretius quite overpowers the disdain. With such a creed as Lucretius professed to have found for himself, and with his fervent temper, he must have felt that the mountain-tops, though lofty places of view, were very cold sometimes. Yet the rarity of their air could not chill the feeling for humanity in his heart.

But all this time the atoms have been waiting, and, with a *Nunc age*, Lucretius recalls his reader to the subject.

The second book contains, as Professor Jenkin remarks, what may be called the kinetics of the atomic theory. In it Lucretius promises to treat of the *motion* of the atoms. He will set forth 'by what motion the birth-giving atoms beget different things, and after they are begotten break them up again, and by what force they are compelled to do this, and what swiftness in moving through the void they possess.'[1] The book opens with the proposition that matter does not 'cohere inseparably massed together.'[2] It is always in motion—

[1] 'Quo motu genitalia materiai
Corpora res varias gignant genitasque resolvant,
Et qua vi facere id cogantur, quæque sit ollis
Reddita mobilitas magnum per inane meandi.'
ii. 62-65.

[2] 'Nam certe non inter se stipata cohæret
Materies.'
ii. 67, 68. Compare i. 340-345.

coming and going. This he infers from the continual change in the world, by which individuals alter and perish while yet the whole remains the same. The cause of these changes, what we should call the energy of the universe, Lucretius holds to be the atoms in motion. The only ultimate form of energy which Lucretius recognizes is the motion of the atoms. His next proposition is to the effect that the atoms can never stop. 'No rest is given to the bodies of the first-beginnings.'[1] After they have come into collision with one another, they cannot either come to a stop or move more slowly—they rebound in opposite directions, keeping their original velocity. 'For when, being in motion, they have met and clashed, as they so often do, it happens that they suddenly leap asunder in different directions, and no wonder, since they are very hard and of strength proportioned to their solidity, and nothing behind gets in their way.' In this it is of course implied that the atoms are elastic. Professor Jenkin has criticized Lucretius very acutely here. He shows that if the atoms were not elastic, 'they must gradually slacken speed after striking and rebounding, stop for an inconceivably short time, and then gradually resume their pace in an opposite direction.' If they rebound, before moving on again they must stop. Modern science explains that, even if they do stop, their energy yet remains unchanged, for the former energy of motion is now transformed into heat, vibration, or some other form of energy. It will be remembered that Lucretius's atoms have no secondary properties, but only hardness and, as he assumes, elasticity. But in a perfectly hard body such as he conceives, motion cannot be transformed into heat or anything else. We now know that a body which is

[1] ii. 95, 96. Epicurus states the doctrine very distinctly: 'The atoms are in constant motion everlastingly,' κινοῦνται συνεχῶς ἀι ἄτομοι τὸν αἰῶνα ('Letter to Pythocles,' Diog. L., x. 43). 'In some bodies,' he continues, 'they rebound to a distance; in others, where they lie closer, they merely quiver or oscillate.'

perfectly hard is not elastic. Lucretius did not know this. His atoms must have come to a stop, and this 'would be equivalent to the destruction of matter.' The next proposition has been anticipated at the end of the first book, where it is rather implied than actually stated. It is that the atoms, as combined in various bodies, are in motion ; they 'mutually give and receive motions.'[1] Lucretius thinks it hardly necessary to state this as a dogma by itself—probably because he views it as implied in the last proposition. It is, indeed, constantly referred to, and often enlarged on throughout the poem. He proceeds at once to defend it.[2] 'One thing you need not marvel at, why, seeing that the first-beginnings of things are all in motion, still the sum appears to stand in perfect rest.' The atoms of any body may move to and fro ceaselessly while we can see nothing but a mass of matter in repose. Just in the same way, moving objects which are large, when far enough away from us, appear to be at rest. This truth is brought home by illustration. A great flock of sheep and lambs, all cropping the grass or gambolling on it, when seen from a distance appears to be only 'a white spot standing on the green hill,' or a mighty army of foot and horse, all in rapid motion, if seen from some place on the mountains very far away, appears only a small bright patch at rest on the plain. Even so, the smallness of the atoms puts, as it were, a vast distance between their motions and our eye.[3]

Lucretius further develops this statement as accounting for the different densities of various bodies. In some bodies the atoms rebound, leaving smaller intervals ; in others they leave larger. In a mass of iron or stone, the atoms are entangled with one another, and can only

[1] 'Atque eadem magni refert primordia sæpe
Cum quibus et quali positura contineantur,
Et quos inter se dent motus accipiantque.'
i. 817-819 ; repeated at 908-910.

[2] ii. 308-332

[3] ii. 308-322.

throb or oscillate, moving to and fro within very small distances ; in softer bodies, like air or sunlight, the atoms rebound at greater intervals.[1]

Since there is no lowest point in the universe on which, as on a floor, matter can come to rest, 'therefore,' says Lucretius, 'we may be sure no rest is given to the atoms throughout the unfathomable void, but instead they are driven on in constant and varied motion : some of them, after they have come into contact, rebound, leaving great spaces between ; others, after the collision, are dashed away, so as to leave but small intervals between them. And whatever atoms have been brought more closely into union, so that after being driven together they rebound, leaving but trifling spaces between, being held fast of themselves by their own close-tangled shapes, such atoms form the sturdy roots of rocks and the unyielding substance of iron along with some other atoms of the same kind [few in number which travel onwards along the great void]. All the other atoms leap far apart and rebound far away, leaving great spaces between them. Such supply us with thin air and bright sunlight.' The atoms, Lucretius tells us, even when they form a mass of stone or iron, still move as swiftly as they did when

[1] 'Nimirum nulla quies est
Reddita corporibus primis per inane profundum
Sed magis adsiduo varioque exercita motu
Partim intervallis magnis confulta resultant,
Pars etiam brevibus spatiis vexantur ab ictu.
Et quæcumque magis condenso conciliatu
Exiguis intervallis convecta resultant,
Indupedita suis perplexis ipsa figuris,
Hæc validas saxi radices et fera ferri
Corpora constituunt et cetera de genere horum
[Paucula quæ porro magnum per inane vagantur.]
Cetera dissiliunt longe longeque recursant
In magnis intervallis.'

ii. 95-107.

Confulta appears to mean 'resting against each other in looser contact,' as opposed to *convecta*. The distances between the atoms are 'large' or 'small' only relatively to the exceeding minuteness of the atoms. Line 105 is out of its place.

streaming through the void. If some rebound within very small limits, they must move to and fro oftener than those which form more porous bodies. (The modern explanation of density, of course, is not merely more molecules within a given space, but perhaps molecules of greater weight also.)

It is worth while to pause for a moment to think how remarkable this statement of Lucretius is. A lump of stone or iron certainly does not give to our senses any impression that its particles are in motion : the piece of inert matter certainly *appears* to be at rest. It is not easy to see what could have suggested to the discoverer a thought so opposite to what the senses tell us. Yet it is accepted by science now as certainly true, both for solid bodies, liquids, and gases. In solids, indeed, these motions of the molecules are confined within very narrow limits, and cannot be detected ; yet Professor Tyndall says of the atoms composing the hardest body, when heated, ' They collide, they recoil, they oscillate.'[1]

According to Maxwell, ' the principal difference between a gas and a liquid seems to be that, in a gas each molecule spends the greater part of its time in describing its free path, and is for a very small portion of its time engaged in encounters with other molecules ; whereas in a liquid the molecule has hardly any free path, and is always in a state of close encounter with other molecules.' In both liquids and gases the molecules move more freely than in solid bodies, and the argument drawn from the diffusion of gases and liquids forms one of the strongest proofs of the motion of molecules. How could two different gases mix so very rapidly, unless the molecules composing them were in motion ? The molecules of any gas flying about beat against whatever opposes them, and the constant succession of these strokes, according to the atomic theory, explains the pressure of gas. Further, as Maxwell says, ' All the three kinds of diffusion, the

[1] ' Fragments of Science for Unscientific People,' by John Tyndall, 1871, p. 12.

diffusion of matter, of momentum, and of energy, are carried on by the motion of the molecules.' Heat, viewed as a mode of motion, furnishes another argument. Lucretius states that the molecules of bodies are moving with more or less speed. Now, if heat be a mode of motion of gross matter, then, as all bodies are more or less hot, the molecules of all bodies must be moving more or less quickly. This is just what Lucretius says, and this statement of his is perhaps his most marvellous anticipation of modern scientific discovery.

Lucretius continues with an illustration. 'If you wish to realize what the motion of the atoms is, observe when the sunlight streams into a dark chamber, how numberless motes toss about and dash against one another, meeting and breaking away again, as if in never-ending conflict; they skirmish and give battle, combating in troops without a pause, driven about in incessant meetings and partings.' Lucretius feels that this illustration has scientific importance. In this case, he says, 'a little thing may in some sort give an illustration of great things, and put you on the track of knowledge.' The motes tumbling in the sunbeam help us to conceive how the atoms are for ever tossing about in the great void. For the movements of the motes have a cause: 'these tumblings imply that hidden and invisible motions of the atoms are at the bottom. . . . This restless motion of theirs is in all cases due to the atoms.' The atoms move first of themselves, next they strike against those bodies which are formed of a few atoms in union and make them move; these again stir up those which are a little larger. 'Thus motion mounts up from the first-beginnings, and step by step issues forth to our senses.' The ever-tossing motes, so to say, actually make visible to our eyes the invisible blows (*plagæ*) of the invisible atoms.[1]

Lucretius next points out that the velocity of the atoms passing through the void is immense. Notice, he says, at sunrise—an Italian sunrise, we must remember—

[1] ii. 114-141.

after the first rays have begun to shoot and the birds to sing in the woods, how soon and how suddenly the heaven is filled with light. Yet the rays of light are formed of countless molecules, and have to pass through a medium —the air—the molecules being pulled back by each other and hindered by the air. How much more swiftly must the atoms, which are single bodies, stream through the unresisting void? Professor Jenkin remarks that Lucretius 'may also have felt that if all the power of the universe depended on the motion of exceedingly small particles, it was necessary to suppose them endowed with great velocity; but we do not find this argument used, although it has led the modern believer in atoms to the conviction that, if their motion does represent energy, their velocity must be enormous. Lucretius would be glad to know that Herapath, Joule, Krönig, Clausius, and Clerk-Maxwell have been able to calculate it.'

Dr. Joule calculated the actual velocity of the molecules of hydrogen, and found it to be exceedingly great, at the rate of nearly sixty-nine miles a minute. The velocity of other gases is less. Maxwell has calculated, from the data of Professor Loschmidt of Vienna, the actual velocity of the molecules of four different gases at 0° C. It is as follows:

	Hydrogen.	Oxygen.	Carbonic Oxide.	Carbonic Acid.
Metres per second ..	1,859	465	497	396

The molecules of calm air, he says, are flying about in all directions at the rate of about seventeen miles a minute:

'If all these molecules were flying in the same direction, they would constitute a wind blowing at the rate of seventeen miles a minute; and the only wind which approaches this velocity is that which proceeds from the mouth of a cannon. How, then, are you and I able to stand here? Only because the molecules happen to be flying in different directions.

'But it is not only against us, or against the walls of

the room, that the molecules are striking. Consider the immense number of them, and the fact that they are flying in every possible direction, and you will see that they cannot avoid striking each other. Every time that two molecules come into collision, the paths of both are changed, and they go off in new directions. Thus each molecule is continually getting its course altered, so that, in spite of its great velocity, it may be a long time before it reaches any great distance from the point at which it set out.'

Again, referring to an experiment with ammonia, he says:

'The molecules of ammonia have a velocity of 600 metres per second, so that if their course had not been interrupted by striking against the molecules of air in the hall, every one in the most distant gallery would have smelt ammonia before I was able to pronounce the name of the gas. But, instead of going at this rate, each molecule of ammonia is so jostled about by the molecules of air that it is sometimes going one way and sometimes another. It is like a hare which is always doubling, and though it goes at a great pace, it makes very little progress.'[1]

Maxwell has calculated also the number of collisions which each molecule must undergo in a second. They amount to thousands of millions, and are as follows:

	Hydrogen.	Oxygen.	Carbonic Oxide.	Carbonic Acid.
Collisions in a second (millions)	17,750	7,646	9,489	9,720

'No wonder,' he observes, 'that the travelling power of the swiftest molecule is but small, when its course is completely changed thousands of millions of times in a second.' So circumstantially has science developed the thought of Lucretius that the atoms really move with as great velocity when pent in stone as when floating free in the void. In the same lecture Maxwell divides the

1 'Molecules,' a lecture by Professor Clerk-Maxwell, 1873.

ultimate results of molecular science into three ranks, 'according to the completeness of our knowledge of them.' In the first rank he places the relative masses and the velocities of the molecules, which, he says, 'are known with a high degree of precision.' Other data, which are less precise, he places in the second rank, and others which are as yet conjectural, in the third. Astonishing, indeed, is this weighing of the atoms and counting their numbers and measuring their speed—to realize how, after long and patient processes of thought, the atom, hunted in the dark till it has been found, appears at length before the eye of the investigator. Indeed, a triumph of the 'scientific imagination' and intellect! Yet among the propositions of Lucretius, which have been stated, the fruit of ancient thought unaided by experiment, there are one or two which seem to us even as wonderful.

Several additional propositions may be gathered from the poem, which, though not stated in order by Lucretius, may be here inserted. The first of these is not distinctly formulated, but is often referred to or implied throughout. Lucretius applies to the combination of the atoms before matter is produced, a word which is most unusual as employed to denote things without life—namely, *concilium*. No editor has yet explained its exact force as a specific scientific term in Lucretius's poem. Apparently it must have conveyed to a Roman ear the meaning of 'an assemblage' of living beings, according to its ordinary sense.[1] Lucretius repeats again and again that before any kind of substance (*res*), whether dead-matter or living organism, can be formed, atoms must enter into *concilium*. In some passages Lucretius seems to use the word where we should speak of a germ (of organic) or a nucleus (of inorganic matter). When the tossing of the sea of matter has driven together atoms of like

[1] But *concilium* bears another meaning which probably suggested its specific use in Lucretius; so Arnob., ii., p. 24: 'Corporalibus conciliis fetus feræ procreant.' Compare Lucretius, i. 182: 'Genitali concilio.'

kind,[1] these come close together so as to continue to rebound at the shortest possible distances. A small body is thus formed, and, when other atoms have joined it, it increases in bulk, and so any kind of substance (*res*) is produced. On the other hand, if unlike atoms come together, they are unable to assimilate their motions, and thus, by continuing united, to form a nucleus. In such cases *concilium* does not occur.[2] Atoms unlike those forming a given body may for a time be associated with them in that body, but presently they are 'cast off' from it, and must travel along the great void again. Lucretius supposes every kind of matter to be formed by the growth of such nuclei. Atoms must not only enter into *concilium*, but they must remain in it (*remorari in concilio*): unless they are able thus to move in concert and to continue so moving, no body can continue to exist. As to the conception of atoms united in *concilium* acting as a kind of nucleus, we may quote Professor Clifford, who says: 'It is known that the first step is often a difficulty in the formation of chemical compounds, and that when

[1] Compare ii. 563, 564. If any kind of atoms are finite in number, they will never be able to combine:

'Nunquam in concilium ut possint compulsa coire,
Nec remorari in concilio, nec crescere adaucta.

[2] Multaque præterea magnum per inane moventur,
Conciliis rerum quæ sunt reiecta nec usquam
Consociare etiam motus potuere recepta.'—ii. 110-112.

'Propter dissimilis formas variasque figuras,
Quod non omnia sic poterant coniuncta manere
Nec motus inter sese dare convenientis.'—v. 440-442.

We may contrast with these the lines immediately preceding the last passage. They refer to atoms, which, being unlike, are unable to combine.

'Nec similis nostris rebus res ulla videri,
Sed nova tempestas quædam molesque coorta
Omne genus de principiis, discordia quorum
Intervalla, vias, conexus, pondera, plagas,
Concursus, motus turbabat, prœlia miscens,
Propter dissimilis formas variasque figuras,' etc.
v. 435-440.

the process has once begun, the new compound has the property of assisting the formation of its like.'[1]

Modern critics of Lucretius have often said that atomic motion of the kind he supposes would give 'at best only aggregates of particles.' The very same criticism was made long ago by Plutarch,[2] who complains that the Epicurean atoms could compose nothing, but could only make 'many and continual collisions,' and that the constant clashing of the atoms produces 'no incorporation or coalition, but only percussions and re-percussions'—only 'a confusion and combat of atoms, which the Epicureans choose to call generation.'[3]

Lucretius, though he may not have provided for anything more than this, according to modern scientific requirements, would certainly not have agreed to this definition as correct. He insists pointedly that the atoms must unite *in concilio*—that is to say, the atoms must combine and group themselves in a certain way before any kind of substance can be produced. Thus he does certainly insist on something more than mere mechanical combination among the atoms. According to Lucretius, *concilium* occurs only when like atoms come together.[4] Modern chemistry, too, teaches us that all

[1] 'Lectures and Essays,' by Professor Clifford, vol. ii., p. 312.

[2] Against Colotes the Epicurean, c. 10.

[3] *πληγὰς καὶ ἀποδόσεις. . . . ταραχὴν καὶ μάχην καθ' αὑτοὺς λεγομένην γένεσιν.* To exactly the same effect says Simplikius ('De Cœlo,' p. 133, ed. Karsten, 1865): The eternal atomic collisions may produce entanglement and mechanical contact, but no fusion, into one new nature. *συμψαύειν μὲν αὐτὰ καὶ πλησίον ἀλλήλων εἶναι ποιεῖ· φύσιν μέντοι μίαν ἐξ ἐκείνων κατ' ἀλήθειαν οὐδ' ἡντιναοῦν γεννᾷ . . . τοῦ δὲ συμμένειν τὰς οὐσίας μετ' ἀλλήλων μεχρὶ τινὸς αἰτιᾶται τὰς ἐπαλλαγὰς καὶ τὰς ἀντιλήψεις τῶν σωμάτων.*

[4] We may compare the passage of Hippolytus on the atomistic origin of the world. Its germ is formed in consequence of like atoms being thrown together. *προσκρούοντα ἀλλήλοις συμπλέκεσθαι τὰ ὁμοιοσχήμονα καὶ παραπλήσια τὰς μορφὰς.* He is here speaking of Leucippus ('Refut.,' i. 12). Again, Simplikius ('De Cœlo,' p. 110, Karsten), of Democritus's account of the origin of the world, *τὰς ἀτόμους . . . συγκρούεσθαι, καὶ τὰς μὲν ἀποπάλλεσθαι ὅποι ἂν τύχωσι, τὰς δὲ περιπλέκεσθαι κατὰ τὴν τῶν μεγεθῶν καὶ σχημάτων καὶ θέσεων καὶ τάξεων συμμετρίαν.* Democritus insisted

the atoms of each element are alike, while the atom of each elementary substance differs essentially from that of every other. Chemistry, moreover, asserts that both simple and compound bodies are composed of molecules, or groups of atoms, which are formed by the action of chemical affinity. Can it be said that by his notion of *concilium* Lucretius meant to assert that no kind of substance can be produced unless the atoms have first united in some special order or combination differing from mere mechanical contact? and that *concilium* thus foreshadows the doctrines of *chemical combination* among the atoms, and, though only vaguely and by implication, of the *molecular composition of matter?* The existence of molecules is now viewed not as contradictory to the theory of atoms, but only as its complement, and it would be interesting to find in Lucretius a foreshadowing, though faint, of the doctrine of molecules developing out of the atomic theory as held by Epicurus.

Giussani, however, goes much too far when he says that Epicurus and Lucretius both held the existence of 'molecules' of different kinds—that is to say, of small bodies which have the same nature as the substances which they form: iron, stone, wine (or, rather, we should say 'alcohol'), or oil, or so on. 'Lucretius's *cacumina*,' he says, 'when regarded as extension, are the smallest points within the field of the visible: when regarded as substance, they are the molecules of a body, or the *partes minimæ, which have the character of that body or substance;* any further division resolves them into atoms.'[1]

specially on the law that like atoms are attracted to each other. He finds the cause of this in the whirling motion which, as it were, 'sifts' the atoms into separate heaps, according to their size and form. (See note on chap. vii., § 3.)

[1] 'Studi Lucreziani,' p. 58. Epicurus's ὄγκοι, he says (when the term is used of any *res*), are its 'molecules' (p. 58). At ii. 454, Lucretius, he tells us, uses 'glomeramina' to denote 'the molecules of liquids' (p. 81). Giussani would even translate 'exordia rerum cunctarum' at iv. 112, and 'primordia' at 118, by 'molecules' (p. 83). No doubt Lucretius does speak of some-

His assumption is entirely unjustified. Neither Epicurus nor Lucretius can be said to speak of 'molecules' in the sense of modern chemistry. The notion is foreign to both.

Three other propositions are introduced by Lucretius only in the later books. One very important one may be called the doctrine of Emanations. From the surface of all bodies minute particles are at every moment streaming off. These particles may preserve the shapes of the bodies which discharge them, and so form images or 'idols,' which are the cause of our seeing. Such effluxes cause us either to see or hear or smell, according as they enter the passages appropriate to each sense. There is a constant succession of these emanations. 'In one moment of time there must be carried away from objects idols many in number, and in many ways, and in all directions round.'[2] If these images were at any moment to cease, we should also cease to see or hear or smell. This theory of emanations is one of the most distinctive of all Epicurus's doctrines. In consequence of this constant evaporation from all matter, a perpetual waste must be going on in the world, and this helps us to see why Lucretius thought it so necessary that the world should be constantly fed with fresh matter from without in order to preserve it in being.

Again, all bodies are porous, and so these emanations constantly fly through them in all directions. Thus all matter is more or less interpenetrated by other matter. Every substance, at any moment, contains within its pores particles of many other substances. Though Lucretius does not state it so prominently as Empedocles

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thing like molecules—that is, of small concretions of atoms—as forming, for example, 'enduring roots of stone and unyielding bodies of iron' (ii. 103). But here he is merely showing how atoms are drawn together into masses in consequence of their likeness. 'Glomeramina,' at ii. 454, is simply 'drops.' At ii. 134 *ff.* he speaks merely of a succession of particles formed of aggregates of atoms each larger than the other, and at last becoming visible to the eye as motes in the sunbeam.

[2] iv. 163-165.

did, the notion of pores resembling or differing in form from the shapes of the atoms plays an active part in his system. Lucretius falls back on the Empedoclean doctrine of the *συμμετρία τῶν πόρων*—that is, the symmetry between the pores and the shapes of the atoms entering them, as an explanation of not a few questions, notably the action of the magnet. 'Since many pores are assigned to different sorts of things, these pores must differ one from the other. Each must have its own nature and passages of its own kind.' Thus the pores of the organs of taste, hearing, and smell must differ widely. So, again, with inorganic matter. Images of finest atomic texture can pass through glass, heat through metal, and so on. One thing can pass more quickly than another through the same pores because the atoms of the former more closely resemble these pores in shape.[1]

Moreover, the pores of all bodies are filled with air. The air that is within each substance is in constant motion, throbbing to and fro, and making the whole body vibrate. In explaining the operation of the magnet, he says: 'All things must have air in their body. . . . This air, therefore, which is hid in the inmost parts of the iron, is constantly throbbing in restless motion; and therefore, without doubt, it beats upon the ring, and must stir it inwardly.'[2] Lucretius works out at great length the doctrine of Images, as explaining the faculty of sight, in his fourth book. All three doctrines, however, are pointedly illustrated in his explanation of the magnet,[3] which we discuss in a later chapter. They show

[1] vi. 979-997. On the magnet, see Chapter XVI.

[2] 'Denique res omnes debent in corpore habere
Æra, quandoquidem raro sunt corpore et ær
Omnibus est rebus circumdatus adpositusque.
Hic igitur, penitus qui in ferrost abditus ær,
Sollicito motu semper iactatur, eoque
Verberat anellum dubio procul et ciet intus
Scilicet.'
vi. 1034-1040.

[3] vi. 906-1064.

us how Epicurean science conceived all matter to be penetrated by invisible movements of many various kinds, intricately crossing each other.

Before setting forth what the original motion of the atoms is, Lucretius shows that there is no exception to the universal tendency of gravitation. All motion, relatively to the earth, is downwards. The direction of the atoms is also downwards. Borne by their weight, they fall 'straight down' in infinite numbers through infinite space with immense speed. We can fancy the bewildering vision of the falling atoms haunting the poet's mind both awake and in his dreams. Lucretius having now arrived at atoms in motion, sees the way clearly to construct the world.[1]

His next proposition is a most remarkable one. In it he suddenly deserts the domain of physics altogether. 'Illud in his rebus,' Lucretius begins—a rather prosaic phrase, of which he is fond when he wishes to call special attention to some point of the argument:

'This point of the subject we desire you to apprehend, that when atoms are borne straight downwards through the void by their own weights, at quite uncertain times and uncertain places, they push themselves a little from their course, only just so much that you can call it a change of inclination. If they were not wont to swerve thus, they would fall down all, like drops of rain, through the deep void, and no clashing could have been begotten, nor any collision produced, among the first-beginnings: thus Nature never would have produced anything.'[2]

[1] Gassendi says: 'Epicurus held that the atoms all possess a certain innate force, that inherent energy which he calls Gravity' (vol. i., p. 118), and that 'on account of this motion innate in them the atoms are the cause of all motion and action in Nature' (vol. ii., index). Gassendi entirely rejected this notion of an inherent power of motion in the atoms: God, he holds, has implanted it in them, and He is ever renewing it. His explanation of gravity, magnetism, etc., shows how deeply Epicurean science had influenced him (see Appendix).

[2] ii. 216-224.

He continues : If anyone believes (as did Democritus) that atoms can come into contact through the heavier falling more quickly and striking the lighter, 'he goes far astray from true reason.'[1] This is no subtsitute for declination. It would be so, indeed, did the atoms fall through water or air, which offer more resistance to the lighter than they do to the heavier. Empty void, on the other hand, cannot offer resistance to anything, and, therefore, things of unequal weight fall through it with equal velocity. Had Lucretius known it, he would have quoted the modern experiment showing the resistance of the atmosphere—a guinea and a feather dropped from the top of a receiver, exhausted of air, and falling to the foot at the same instant. Again, he defines the amount of this inclination more specially as 'not more than the least possible.' No one, he says, can positively state that falling bodies do not 'swerve at all from a straight line.' According to Epicurus, and, as Munro believes,[2]

[1] So Aristotle, though he thought void impossible, had pointed out before Epicurus's time, that, in a vacuum such as Democritus assumes, falling bodies would experience no resistance, and must all fall at the same rate. It is characteristic of Epicurus that he adopts Aristotle's correction of Democritus.

[2] See his notes on book i., ll. 1000, 1001 (where Lachmann and Bemays follow some older editions in reading 'æternaque') :

> 'Partibus e cunctis *infernaque* suppeditantur
> Ex infinito cita corpora materiai,'

and on l. 1044. Compare also ll. 1035, 1036 :

> 'Quod nullo facerent pacto nisi materiai
> Ex infinito *suboriri* copia posset,

and ll. 1049-1053 beginning :

> 'Quare etiam atque etiam *suboriri* multa necessest.'

Mr. Munro has thoroughly defended the MS. reading 'inferna,' and his own explanation of a point misunderstood by previous editors. He quotes Epicurus (Diog. L., x. 41), *τὰ ὑπερείδοντα καὶ στέλλοντα κατὰ τὰς ἀνακοπάς*, which means, 'the particles supporting from below and rising upwards in consequence of collisions.' We find in Aetius a passage to exactly the same

according to Lucretius also, the result of the collisions among the atoms produced by this declination is that they are forced in an upward direction, whether perpendicularly or obliquely upwards.[1] 'Both Epicurus and Lucretius conceived the rising up of the atoms in a direction more or less contrary to the only natural motion, as that which enabled things to come into being and remain in being.' As the natural motion of the atoms is downwards, every kind of upward motion would have an upholding power, and enable things to maintain their existence. 'This swerving,' says Professor Jenkin, 'seems but a silly fancy, and yet consider this : it is a principle of mechanics that a force acting at right angles to the direction in which a body is moving does no work, although it may continually and continuously alter the direction in which the body moves. No power, no energy, is required to deflect a bullet from its path, provided the deflecting force acts always at right angles to that path—an apparent paradox, which is, nevertheless, quite true and familiar to the engineer. It is clear to us that Epicurus, when he devised his doctrine of a little swerving from the straight path of an atom, had an imperfect perception of this mechanical doctrine ; a little swerving would bring his atoms into contact, and a modern mechanician would tell him you require no power to make them swerve.' It may be so. The Greek mind had marvellous intuitions. An observant man could hardly have failed to notice that exceedingly little force is required slightly to deflect from its path a thing which is already in motion. Yet we can hardly think that Epicurus had such an idea in his mind : was it not rather

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effect, where the upward motion of the atoms is attributed to 'collision' and 'recoil': *τὰ δ' ἄνω κινοῦμενα, κατὰ πληγὴν, κατὰ παλμόν* ('De Plac. Phil.,' i. 12). Lachmann's explanation is consistent neither with the other points of Lucretius's system, nor with the texts of Epicurus.

[1] The declination itself is not in an upward direction. For a falling body to move up is rather a violent alteration of its course.

an exceedingly simple, yet most original, solution of the difficulty—given an infinite number of atoms, moving all in parallel lines, falling straight downwards and never touching one another, how to make them meet and combine, that they may create the world? This least possible declination, so little that it was hardly moving from the straight line, was sufficient and answered every need. There could be no simpler solution of the difficulty.

Professor Jenkin finds two inconsistencies in this part of Lucretius's theory. Firstly, as to the downward motion of the atoms, it is plain that 'Lucretius unconsciously assumed the world as his basis by which to measure direction and velocity.' This objection is one which has been made by many critics of Epicurus, and appears unanswerable. But it is clear that by *up* and *down* Epicurus simply denotes the two opposite directions of motion in infinite space, so that the notion of a downward motion of the atoms is merely relative in its meaning.[1] The second objection is a more important one. We have seen that Lucretius sought for an explanation

[1] 'From the time of Cicero [see also Plutarch, "De Defectu Orac.," c. 28], Epicurus has been reproached with his simplicity in admitting a downward motion, and, consequently, an *up* and a *down* in infinite space. But a text of Epicurus's definitely proves that he was not so simple. Up and down are conventional terms, which designate, according to him, the two opposite directions of movement in infinite space. *ὥστ' ἔστι μίαν λαβεῖν φοράν, τὴν ἄνω νοουμένην εἰς ἄπειρον, καὶ μίαν τὴν κάτω, ἂν καὶ μυριάκις πρὸς τοὺς πόδας τῶν ἐπάνω τὸ παρ' ἡμῶν φερόμενον ἐπὶ τοὺς ὑπὲρ κεφαλῆς ἡμῶν τόπους ἀφικνῆται, ἢ ἐπὶ τὴν κεφαλὴν τῶν ὑποκάτω τὸ παρ' ἡμῶν κάτω φερόμενον· ἡ γὰρ ὅλη φορὰ οὐδὲν ἧττον ἑκατέρα ἑκατέρᾳ ἀντικειμένη ἐπ' ἄπειρον νοεῖται* (Diog. L., x. 60.) Thus *up* and *down* denote for Epicurus a relative condition, like the terms right and left, bass and treble, large and small. What remains always untenable is the hypothesis which attributes to original motion *two* possible directions and not more' (Guyau, 'La Morale d'Épicure,' pp. 74, 75). Epicurus's defence is, that while there can be no absolute Above and Below in infinite space, still motion from our head towards our feet must always be contrary to motion from our feet towards our head. This seems reasonable, though Zeller will not allow it. (Vol. ii., p. 241, note 2, Eng. trans.).

of the power of the universe in the velocity of his atoms. But atoms pouring downward all at one speed, and in parallel lines, could really be no source of power. 'Motion in mechanics has no meaning except as denoting a change of relative position.' But it would be impossible for these atoms ever to change their relative position; they would never be nearer, and could never be more distant from each other than before. Lucretius's atoms are all, relatively to one another, perfectly still and motionless. 'Atoms pouring onward, as imagined by our author, could be no source of power.' This fact, taken by itself, is of course undeniable. Again, he says of the atoms of Democritus (which moved to and fro in all directions indifferently), 'one atom might then exert its force on another, but the Lucretian atoms would have remained in profound stillness, *except for that occasional swerve*.' But are these criticisms justified? Lucretius, of course, saw that his atoms, in their original downward movement, were relatively motionless. No collision could then take place among them. The truth is that Lucretius never conceived an atom as acting on another in any way beyond the declination and but for it. But for this, he says,[1] the atoms would never have touched each other, and 'Nature never have produced aught.' The number of atoms being infinite, Lucretius saw that the slightest declension must produce innumerable collisions. His atoms are driven about, and move to and fro, even more freely than did those of Democritus. The illustration of the motes in the sunbeam is used to express faintly with what restless and promiscuous motion they dash about. The swerve *does* universally change their relative position. This is just the force of it. At all events, Lucretius is not inconsistent in this. The slightest declension is quite sufficient to bring his atoms into universal collision, in which their whole velocity comes into action, and thus they are rendered a source of power,

[1] At ll. 216-224.

the source of all the energy or forces acting in the world.

But Lucretius has a double purpose in this remarkable doctrine. First, the mere fact of swerving is enough to bring his atoms into contact. In the second place, by this it is intended to explain how we come to possess free-will. If the atoms could not decline, neither should we be able to move at will.

This power in the atoms corresponds to free-will action in men and animals; and in the conception of Lucretius it is the cause of it. Professor Jenkin here suggests the alternative that, instead of permitting atoms to deflect their path at will, Epicurus might have given to man the power of deflecting the stream of circumstance.[1] He says forcibly:

'The atoms may, as Democritus believed, build up a huge mechanical structure, each wheel of which drives its neighbour in one long inevitable sequence of causation; but you may assume that beyond this ever-grinding wheelwork there exists a power not subject to, but partly master of, the machine; you may believe that man possesses such a power, and if so, no better conception of the manner of its action could be devised than the idea of its deflecting the atoms in their onward path to the right or left of that line in which they would naturally move. The will, if it so acted, would add nothing sensible to, nor take anything sensible from, the energy of the universe. The modern believer in free-will will probably adopt this view, which is certainly

[1] To the same effect Sir Oliver Lodge writes: 'Guidance of matter can be effected by a passive exertion of force without doing work—as a quiescent rail can guide a train. . . . But the analogy of the rail must not be pressed: the rail "guides" by exerting force perpendicular to the direction of motion; it does no work, but it sustains an equal opposite reaction.' Not so the guidance exercised by life or mind: 'determination' can sustain no reaction; it arranged for the rail to be placed in position. It 'employs' mechanical stress as a capitalist employs a labourer, not doing anything itself. (*Life and Matter*, p. 165.)

consistent with observation, although not proved by it Such a power of moulding circumstances, of turning the torrent to the right, where it shall fertilize ; or to the left, where it shall overwhelm ; but in nowise of arresting the torrent, adding nothing to it, taking nothing from it—such is precisely the apparent action of man's will.'[1]

Epicurus, accepting the atomic theory with all its assumed consequences, thought himself compelled either to accept Necessity (as Democritus had done) or to endow his atoms with Free-will, exercised not constantly, but at uncertain intervals. It is not every one who would have had the courage to give the atoms Free-will. Many have scoffed. Yet there is, as Munro has said, 'something grand in the simplicity' of Epicurus's solution.

The latest historian of Epicureanism has called this doctrine of atomic declination 'the central and most original point of Epicurus's system.'[2] In order the better to understand it, we must leave it for the present until we have examined Epicurean psychology.

[1] This passage from Professor Jenkin suggests to us the question, How far does his expression as to the action of free-will hold for the moral world ? With regard to different motives for personal conduct, the action of free-will appears, similarly, to be *rarely* (in the case of most people, at least) in violent opposition to that of impulse, but as it were slightly, yet distinctly, deflecting the spontaneous impulse. In illustration of this an able Roman Catholic writer may be quoted: 'I have the fullest power of *opposing* my will's spontaneous impulse. . . . How far I may *choose* to put forth such exertion—this is not abstractedly matter of calculation at all. . . . At the same time, it should be observed that, in all ordinary cases, the act of will, which results in fact, is found in *close vicinity* to the will's spontaneous impulse. . . . In 999 cases out of 1,000 a man's probation is carried to a successful issue by this more than by anything else ; viz., by putting forward on repeated occasions a number of acts, which are *a little* higher than his spontaneous impulse' (Dr. W. G. Ward, 'Science, Prayer, Free Will, and Miracles,' 1881, pp. 46, 47). In great crises of personal history, involving moral and spiritual struggles, certainly this does not apply ; but for the ordinary life of most people it is, probably, true enough.

[2] M. Guyau, 'La Morale d'Épicure,' 1881, p. 99, note.

The last proposition which we shall quote from Lucretius is as follows: 'Nor was the store of matter ever more dense or ever separated by larger intervals than now; for nothing is either added to it or lost from it. Wherefore, in whatsoever motion the bodies of the first-beginnings now move, in the same way they moved in time gone by, and in like manner will they always be borne along hereafter. . . . No force can alter the sum of things [*i.e.*, the universe]; for there is no 'Beyond' into which either any kind of matter can escape out of the universe, or out of which a new force[1] can arise and burst in and change all the nature of things and disturb its motions.'[2] Lucretius here states that matter was never more or less dense than it is now, and that the atoms have always moved, and always will move, with the same velocity; and because there is nothing else outside and beyond the atoms, nothing can alter the sum of things, 'what we should call the energy of the universe.' 'This proposition,' says Professor Jenkin, 'foreshadows the doctrine of Conservation of Energy. It is clear that

[1] 'Nova vis.' Munro translates 'a new supply'—that is, of matter.

[2] 'Nec stipata magis fuit unquam materiai
Copia, nec porro maioribus intervallis;
Nam neque adaugescit quicquam neque deperit inde.
Quapropter quo nunc in motu principiorum
Corpora sunt, in eodem ante acta ætate fuere
Et post hæc semper simili ratione ferentur,
Et quæ consuerint gigni gignentur eadem
Condicione et erunt et crescent vique valebunt,
Quantum cuique datum est per fœdera naturai.
Nec rerum summam commutare ulla potest vis;
Nam neque, quo possit genus ullum materiai
Effugere ex omni, quicquam est extra, neque in omne
Unde coorta queat nova vis inrumpere et omnem
Naturam rerum mutare et vertere motus.'
ii. 294-307.

We may compare v. 361 *ff.*:

'Sicut summarum summa est æterna neque extra
Qui locus est, quo dissiliant, neque corpora sunt quæ
Possint incidere.'

Lucretius conceived two things as quite constant: atoms were neither created nor destroyed, and their motion could neither be created nor destroyed. He believed that each atom kept its velocity unaltered. The modern doctrine is that the total energy of the universe is constant, but may be variously distributed, and is possibly due to motion alone ultimately, though this last point has not been yet proved.' 'If matter in motion be conceived as the sole ultimate form of energy, *Lucretius must be allowed great merit in having taught that the motion of matter was as indestructible as its material existence,* although he knew neither the laws of momentum nor of *vis viva*. If energy, as he believed, be due solely to motion, then his doctrine is true.' Thus, in the concluding proposition, Lucretius states that Force is indestructible.

Lucretius has now constructed a complete atomic theory of the world. He has completed the needful foundation from which to demonstrate that the atoms, moving of their own accord, have created all existing things, including the body and soul of Titus Lucretius and of all men destined to be. If you are not convinced of this—if you are not at once prepared to do homage to the creative atoms, the poet, like Professor Clifford, waxes indignant, and wonders that you are so impervious to reason.

We have now enumerated the whole series of propositions containing Lucretius's atomic theory. His scientific style is admirably simple; its simplicity and plainness convey the impression of good faith. I shall refer later on to the illustrations which break the severity of the argument. Apart from their beauty of conception, they have, at the same time, in every case, a scientific value: they show, according to Tyndall, that Lucretius had a strong 'scientific imagination.'

CHAPTER VII

THE BIRTH OF THE WORLD

THUS far Lucretius has carried us with wonderful coherence. But, after following him as our guide so far, we now come to a gap in his theory—indeed, a bottomless chasm over which he has thrown no bridge. With a single leap he passes from the whirling atoms to the world with all its life, beauty, and order, but hardly a word as to *how* the atoms have produced it, how the supreme result is reached. Sellar says : ' He may, as was natural, have failed in adequately conceiving the transition from the fortuitous concourse of lifeless atoms to the exuberant life and perfect order of the world :' perhaps it might be more correct to say—he almost totally omits any attempt to show how this could take place. Over and over again he asserts that the intricate and countless movements of the clashing atoms, trying every manner of combination in the course of their perpetual motion from eternity, have produced the world, and that all the life upon it has resulted from the complicated motions and collisions of these hard little kernels. But for sole answer to the question, ' How can this take place ?' Lucretius gives a few vague hints. ' Truly not by design have the first-beginnings of things stationed themselves each in their proper places, by sage consideration, nor have they made agreement what motions they should each assume. Not so in truth ; the cause is that they are many in number, and have shifted, in changes many, all the universe over. They have been driven together

and tormented by constant shocks from all eternity. After trying in this way motions and unions of every kind, they fall at length into the arrangements out of which this world of ours has been formed, and by which, too, it has been preserved in being through many cycles, when once it has been thrown into the fitting motions.'[1] This passage contains Lucretius's whole account of Evolution, certainly a short one. He repeats it often, and frequently enlarges it by some phrase like the following: 'At length come together those atoms which, *being suddenly* carried together, become the rudiments' of the world, or 'at length there filtered through those atoms which, *being suddenly cast together*, become, from time to time, the rudiments of great things, of earth, sea, heaven, and of the race of living things.'[2] Lucretius holds that there is something sudden in this atomic begetting of an infant world. When the course of atomic combinations has at last brought the fit atoms near each

[1] i. 1021-1030. The same passage, with slight variations, is found at ii. 1053-1063, v. 187-194, and, with fullest detail, at v. 419-431, as follows:

'Nam certe neque consilio primordia rerum
Ordine se suo quæque sagaci mente locarunt,
Nec quos quæque darent motus pepigere profecto,
Sed quia multa modis multis primordia rerum,
Ex infinito iam tempore percita plagis
Ponderibusque suis consuerunt concita ferri
Omnimodisque coire atque omnia pertemptare,
Quæcumque inter se possent congressa creare,
Propterea fit uti magnum volgata per ævom
Omne genus cœtus et motus experiundo
Tandem conveniant ea quæ convecta repente
Magnarum rerum fiunt exordia sæpe,
Terrai maris et cæli generisque animantum.'

[2] 'Tandem conveniant ea quæ convecta repente.'
v. 429.

'Tandem colarunt ea quæ, coniecta repente,
Magnarum rerum fierent exordia semper.'
ii. 1061, 1062.

Compare also i. 1030:

'Ut semel in motus coniectast convenientis.'

other, suddenly they leap together, and the germ of the world is born.

Epicurus borrowed his cosmogony, like most of his other doctrines, from Democritus, but he departs from the Atomists in rejecting the expedient of a 'vortex.' Leucippus says: 'The worlds are produced thus: Many atoms of all manner of shapes become cut off from the infinite, and are carried into a vast void space; there they gather together and produce one vortex'—that is, the whole mass begins to go round and forms one swiftly-revolving atomic whirlpool, in the course of which the atoms are separated, and like joins like.[1] To the same effect Democritus says: 'A vortex of atoms of all shapes becomes separated from the infinite.' How this takes place he did not, we are told,[2] attempt to explain. Epicurus seems to have made the utmost of this point of difference from Democritus. He dismisses with contempt the notion that nothing more is needed to explain the birth of a world than a 'vortex' and a 'collection of atoms.'[3] The comic poets could not have taunted *him* —expressly, at least—with worshipping 'King Dinos' (Vortex). His own account of the origin of the germ of the world is vague enough. He can only say that 'suitable atoms stream together from one or more worlds or from the spaces between the worlds,' and that by degrees this nucleus is added to, and changes shape and place, and fresh matter always gathers round it.[4] Lucretius says nothing whatever about a vortex.

As to the variety in Nature, the fact that all the individuals of the same kind differ in appearance, Lucretius does endeavour in a vague way to account for it. In the first place, the atoms are not all the same,

[1] See especially the cosmogony of Leucippus as described by Diog. L., ix. 31.

[2] By Simplikius (Ritter and Preller, 149 B.)

[3] *οὐ γὰρ ἀθροισμὸν δεῖ μόνον γενέσθαι οὐδὲ δῖνον, ἐν ᾧ ἐνδέχεται κόσμον γίνεσθαι κενῷ . . . καθάπερ τῶν φυσικῶν καλουμένων φησί τις* (Diog. L., x. 90). The sneer is at Democritus (see ix. 44).

[4] Diog. L., x. 89.

but vary in form; and things which differ from one another are composed of atoms of unlike shape. Secondly, the atoms admit of many modes of combination. Lucretius often repeats the formula, 'It matters much with what others and in what position the same atoms are severally held in union, and what motions they mutually give and receive.'[1] Its meaning is that the differences between all bodies are accounted for by differences in the mutual relations of the atoms. They differ in their

> 'Intervalla, vias,[2] conexus, pondera, plagas,
> Concursus, motus,'
>
> 'Concursus, motus, ordo, positura, figuræ,'

'in the spaces between them, their passages, manners of being linked together, weights, collisions, clashings, motions,' and also 'in their arrangement, position, and shapes.'[3] By their differences in shape, motion, weight, and arrangement, the various degrees of colour, sound, scent are produced. To illustrate this he uses the letters of the alphabet. Just as the same letters in different arrangements produce words of entirely different meaning, so the same atoms, in different relations as to order, motion, etc., or with some small exchange for atoms of different form, may produce things of quite opposite qualities, such as fire and air. 'There are certain bodies [that is, the atoms[4]] possessed of such a nature that, if they have haply produced fire, the same may, after a few have been taken away and a few added on, and their order and motion changed, produce air; and all other

[1] ii. 1007-1009.

[2] 'Intervalla, vias'—that is, the shapes of the pores between the atoms of each substance. Lucretius nowhere treats this subject in detail as we should expect him to do; but the doctrine that the shapes of the interatomic or intermolecular pores differ in each substance according to its structure plays an important part in his system.

[3] v. 438, 439, and i. 685.

[4] Lucretius is here refuting the notion of elements.

things may in this way interchange with one another.'[1] 'Nay, even in our own verses,' he says, 'it matters much with what other letters, and in what order, the several letters are placed. If all the letters are not entirely alike, still by far the greatest part are; but the words which they compose differ through the position of these letters. Thus, in material things as well, when the clashings, motions, arrangement, position, and shapes of matter [*i.e.*, of the atoms] change about, the things must change too.'[2] Only as there are far more different kinds of atoms than there are of letters, the former can unite in many more combinations, producing different substances.[3] Thirdly, everything is composed of more than one kind of atoms. 'There is nothing which is not formed by a mingling of seeds.'[4] The more different

[1] 'Quin potius tali natura prædita quædam
Corpora constituas, ignem si forte crearint,
Posse eadem demptis paucis paucisque tributis,
Ordine mutato et motu, facere æris auras,
Sic alias aliis rebus mutarier omnis.'
i. 798-802.

[2] 'Quin etiam refert nostris in versibus ipsis
Cum quibus [sc. elementis] et quali sint ordine quæque locata.
Si non omnia sunt, at multo maxima pars est
Consimilis; verum positura discrepitant res.
Sic ipsis in rebus item iam materiai
Concursus, motus, ordo, positura, figuræ,
Cum permutantur, mutari res quoque debent.'
ii. 1015-1022.

[3] 'Tantum elementa queunt permutato ordine solo;
At rerum quæ sunt primordia, plura adhibere
Possunt unde queant variæ res quæque creari.'
i. 827-829.

[4] 'Nil esse in promptu quorum natura videtur,
Quod genere ex uno consistat principiorum,
Nec quidquam quod non permixto semine constet.'
ii. 583-585.

'Cetera consimili mentis ratione peragrans
Invenies igitur multarum semina rerum
Corpore celare et varias cohibere figuras.'
ii. 677-679.

properties and powers that anything possesses, the greater number of different shaped atoms must it contain.[1] Again, life apparently depends merely upon the regular continuance of certain movements of the atoms. A blow produces death by altering the positions of the atoms, and 'entirely stopping the vital motions.' In fact, Lucretius conceives life as a 'mode of motion.' Of course, he has no protoplasm to bridge over the gulf between dead atoms and living beings. In fact, it seems never to have entered his mind that any reasonable man should doubt that atoms, if they do exist, moving in the way he described, would in the course of time produce life.

According to Lucretius, difference of atomic structure

'Nimirum quia multa modis communia multis
Multarum rerum in rebus primordia mixta.'
i. 814, 815.

'Atque eadem magni refert primordia sæpe
Cum quibus et quali positura contineantur.'
i. 817, 818.

'Namque eadem cælum, mare, terras, flumina, solem
Constituunt, eadem fruges, arbusta, animantis,
Verum *aliis* alioque modo commixta moventur.'
i. 820-823.

The same is of course implied in the illustration from the letters of the alphabet; see the whole argument of ii. 581-599, and 661-699. Yet does not Lucretius's explanation of lightning as formed, apparently *solely*, of very small round atoms, seem to contradict this law? Or can it be that lightning is not included in this statement? It is difficult to bring this doctrine into harmony with the other points of Lucretius's atomic theory. Yet Democritus also seems to have held the same, and, on the other hand, to have explained the possession of any one quality in special intensity, as caused by such a substance being formed of one kind of atoms only—*e.g.*, fire, on account of its extreme mobility, solely of round and smooth atoms. (See Zeller, vol. ii., p. 324, Eng. trans.)

[1] 'Et quodcumque magis vis multas possidet in se
Atque potestates, ita plurima principiorum
In sese genera ac varias docet esse figuras.'
ii. 586-588.

in any two substances is sufficient to account for any difference in their qualities. Thus, after describing the terrific force of lightning, he considers this amply accounted for by saying that the thunderbolt is formed 'of particles especially minute and ready to move.'[1] Similarly, the mind is formed of exceedingly small, smooth, and round atoms. Lucretius feels that if one thing is made of small, smooth, and round atoms, and another of large, rough, and irregular atoms, this is enough to explain any difference between the two, however great, even all the difference which is implied between matter and mind. In his strong belief in the unlimited potency of special differences of atomic form and structure, Lucretius reminds us of a capitalist who realises keenly how vast is the difference between the commercial value of one bag holding copper farthings and another bag holding golden guineas.

But after attentively receiving these suggestions, the reader asks: How do the variously-shaped atoms combine so as to produce objects at all? How have they arranged themselves in such marvellous order? After they have united, how is the regularity of their movements kept up? How do colour, scent, and sound come out of the mere juxtaposition of atoms which possess neither colour, scent, nor sound? Finally, how account for the apparition of consciousness out of atoms which are entirely unconscious? To these questions Lucretius attempts no definite answer. In fact, Epicureanism compelled its convert to swallow this dogma without explanation. But how can this fact be accounted for? Simply in this way: that the scientific mind of Lucretius's day pretty generally accepted atoms as sufficient to prove that the world was not created by God, and that it went

[1] 'Hunc tibi suptilem cum primis ignibus ignem
Constituit natura minutis mobilibusque
Corporibus, cui nil omnino obsistere possit. . . .
Tanto mobilior vis et dominantior hæc est.'
vi. 225-238.

on without either guidance or interference by Deity: much as the scientific mind of the present day (though far more competent to judge) often takes for granted that some other hypothesis, such as Evolution, could science make it certain, *must* imply certain important consequences as to morals or religion; the connection between the theory and the result to be proved, is overleaped. So the Epicurean argued, if once you allow that *atoms* exist, *ergo*, it must follow that the world made itself.

At the same time, if we consider it closely, we see that Lucretius's theory contains some provisions, not separately put forward, yet constantly implied and often referred to, which seem a little more adequate to the assumed results.

1. Of course Lucretius had no idea of what chemistry has revealed as to the exceedingly complex chemical structure of all forms of organic matter. We know that before a molecule of organic matter can be produced, a most marvellous coincidence of atoms must take place. Lucretius, too, explains the origin of organic matter by a coincidence, though he realizes hardly at all the difficulty implied in it. As was before pointed out,[1] he applies to the combination of the atoms, producing any kind of matter, the word *concilium* which is a most unusual term for denoting things without life. (This word must have conveyed to Roman ears the associations of an assemblage of living beings, and thus it implies a rather startling image as applied to dead atoms.[2]) If *concilium* occurring in dead matter answers to something like chemical combination, on the other hand, when Lucretius speaks of *concilium* occurring

[1] See p. 126.

[2] One might almost suppose that he uses the word, of course only by a metaphor, in its later meaning (which it may have had in common speech even in Lucretius's time)—namely, 'generative union.' We cannot press such a line as

'Non fieri partum nisi concilio ante coacto' (ii. 935),

occurring as it does in the refutation of an opposite theory.

in the production of organic matter, he means it to stand for something like 'spontaneous generation.' Lucretius asserts, as we have seen, that without *concilium* no kind of matter can be produced. After *concilium* has taken place—that is to say, after small aggregates of atoms have been formed—he supposes these to act partly as a nucleus and assist the formation of other molecules. To exactly the same effect says Professor Clifford, when endeavouring to imagine the production of a molecule of living matter and its development: 'Possibly, however, the molecule of living matter has from the beginning that power, which belongs to other chemical bodies, and certainly to itself, when existing in sensible masses, of assisting the formation of its like.'[1]

2. It is remarkable how often Lucretius applies to the union of the atoms such words as *gignere, genitali concilio* (continually repeated by him in this sense), which are a vivid metaphor from living creatures. Similarly, he often calls the atoms themselves *genitalia corpora rerum*,[2] 'the particles which beget things.' Again, he constantly applies to the atoms a term used rarely by Epicurus — *semina, semina rerum*, 'seeds,' 'seeds of things,' a name which seems to imply a productive power residing in them. (Empedocles and Anaxagoras also apply the name to their first principles of matter.) The term, though inconsistent with his dogma that matter is 'utterly dead,' is subtly adapted by Lucretius, for beyond question his system implies in the atoms decided tendency and faculties for mutual combination,[3] co-operation, and productiveness.[4] When he describes the

[1] The explanation of concilium here given was offered in 'The Atomic Theory of Lucretius,' 1884, pp. 45 and 63.

[2] Compare i. 632, 'genitalis materies'—'birth-giving matter.'

[3] But when Professor Sellar (p. 319) translates book i., 778, 779, as meaning that the atoms, 'in the act of creation, exercise some secret invisible faculty,' he goes far beyond Lucretius's meaning. The words only mean that the atoms are exceedingly small, and have no qualities which sense can comprehend.

[4] Lucretius's explanation of the chance origin and gradual development of the world out of atoms shows that he realized

work of the atoms in building up the world and all that is on it, we are often reminded of Tyndall's words, 'The very molecules appear inspired with the desire for union and growth.'

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the difficulties attending such a process only very, very faintly. The following passage suggests in what contradictions his position is involved : 'An atom that is possessed of volition, and can alter its direction at will, is certainly intelligent ; or (since Lucretius flatly denies that atoms are intelligent), it is as good for our purpose as if it were so ; it acts as if it were intelligent. When Lucretius assumes that atoms can swerve from their path the least distance possible, it seems a very small thing. Beyond question, if an atom could have free-will, as far as one could imagine, this is just the use it would make of it. It certainly could not use a will of its own in a more modest way. But, in reality, a great deal is granted by this. . . . We now get a truer conception of what the atoms really are. They are not like motes in the sunbeam merely, or the drops in a shower of rain. As we can now imagine them, they are rather like the crowd pouring through the streets of a great city, every individual of which lives and has a will of his own to direct his course, or to turn from the path of the rest as he desires. If we conceive an atom as able to turn to the right or the left at will (and atoms of discretion will, of course, do this on the most necessary and suitable occasions), there is, perhaps, no very great difficulty in their producing the world and its contents. Not so much more remarkable, perhaps, than for a band of masons and carpenters to build a house. Moreover, only upon this hypothesis in which the atoms become, as it were, tiny workmen, plying their mighty toil far beyond our senses' reach as they build up the world like zoophytes building a coral reef—only thus can Lucretius's atomic theory be conceived at all possible as an explanation of how the world and all it contains came into being. Of course this is absurd, the reader says at once ; not merely absurd, but glaringly self-contradictory, for has he not laboured to prove that the atoms are *non-sensile*, only senseless, dead matter ? . . . But, perhaps, this whole view of the matter is only an outside one. Perhaps we have not yet grasped Lucretius's real position' (*British Quarterly Review*, 1875, p. 363).

Atoms such as these are little enough like the actual atoms which Epicurus and Lucretius believed in. Yet industrial semi-living atoms like these present a hardly more reckless inference from Lucretius's doctrine of Declination than does the remarkable theory of 'Spontaneity in things,' which so able a writer as Guyau has inferred from it, and boldly asserts as the actual teaching of Epicurus.

3. Though Lucretius does not specify it separately, it is plain that infinite past time plays a very important part in his theory. He requires infinite time, along with infinity of space, to enable the atoms 'to try motions and unions of every kind.' His

'Ex infinito iam tempore,'[1]

answers to Tyndall's 'immeasurable past.' If we allow the existence of infinite space, filled with an infinite number of atoms, which have been in constant motion from all eternity, combining now in one way, now in another, then these atoms must of necessity have tried all possible combinations.[2] At last, therefore, as Lucretius implies, they *must* succeed in striking into the proper motions to produce the world.[3] To Lucretius this appears most natural, *non mirum*, a result which cannot help occurring. When such a combination has resulted, it will maintain itself, and the world thus created will continue to exist.[4] In one passage he says: 'This world

[1] 'Ex infinito vexantur percita plagis.'
i. 1025.

'Ex infinito iam tempore percita plagis.'
v. 188; repeated at v. 423.

[2] Lucretius brings home to us the endless eternity during which the infinite atomic shuffling has gone on, when he says that in the course of the eternal past, 'the very same atoms of which our bodies are now formed have *often before* been placed in the same order in which they now are' (iii. 854-858).

[3] In a remarkable passage of Cicero's 'De natura Deorum' (i. xx), the Epicurean spokesman maintains that an infinite number of atoms in motion amid infinite space is potent to produce the world; so easy is this that Nature is ever making worlds: 'Cuius [*i.e.*, Dei] operam profecto non desideraretis, si immensam et interminatam in omnes partes magnitudinem regionum videretis. . . . In hac igitur immensitate latitudinum, longitudinum, altitudinum infinita vis innumerabilium volitat atomorum.' It is possible that the perusal of Lucretius may have suggested to Cicero the unwonted vividness of these phrases.

[4] 'Namque ita multa modis multis primordia rerum
Ex infinito iam tempore percita plagis
Ponderibusque suis consuerunt concita ferri

has been made by Nature, just as the seeds of things have chanced to clash, entirely of their own accord, after being driven together in many ways, without purpose, without foresight, without result,[1] and at last have filtered through (*colarunt*) such seeds, as, when suddenly thrown together, might become the germs (*exordia*) of great things, of earth, sea, heaven, and of the race of living things.' Most expressive is the phrase *colarunt*, 'have filtered through,' as if the process of infinite atomic combinations must finally separate from the rest and cast together by themselves the atoms fit to create the world.[2]

Omnimodisque coire atque omnia pertemptare,
Quæcumque inter se possent congressa creare,
Ut non sit mirum si in talis disposituras
Deciderunt quoque et in talis venere meatus,
Qualibus hæc rerum geritur summa novando.'

v. 187-194.

Tandem deveniunt in talis disposituras,
Qualibus hæc rerum consistit summa creata,
Et multos etiam magnos servata per annos,
Ut semel in motus coniectast convenientis.'

i. 1027-1030.

[1] *Temere, incassum, frustra* (of which we quote Mr. Munro's expressive rendering) occurring after 'ipsa sponte sua, forte offensando.' How emphatically, by this reiteration, does Lucretius assign the world's origin solely to the play of chance (ii. 1058 *ff.*).

[2] Epicurus has borrowed this very expressive metaphor of an atomic sifting from Democritus. According to Democritus, it is a universal law that like atoms are attracted to each other, τὰ ὅμοια πρὸς τὰ ὅμοια. The cause of this is a merely mechanical one. The eternal whirling motion of the atoms has a tendency to bring together those which are like each other in size and form, and, as it were, to sift the atoms into separate heaps. In a fragment given in Sextus Math. (vii. 116 *et seq.*), Democritus himself uses this very metaphor of an atomic sifting. Just as animals flock to join those of the same kind, pigeons to pigeons, cranes to cranes, so, he says, the atoms run like to like, 'as you may see either in the case of seeds which are being winnowed in a sieve, or in the case of pebbles on the seashore; for on account of the whirling of the sieve, beans are separated and go with beans, barley with barley, and wheat with wheat; and on account of the motion of the waves, the longish pebbles

4. Lucretius attempts circumstantially to describe the origin of the world. He does not leave the imagination altogether without assistance in its efforts to realize how this came about. His explanation reminds us not a little of the nebular theory. According to this, a part of the primeval nebula, or fire-mist, which filled the whole space now occupied by our solar system, at some time broke off from the mass, and began to revolve separately. This was the beginning of our world. Gradually this portion of nebula condensed and grew cooler, till, in the course of millions of years, it became fit to be the dwelling-place of animals and men. Whether accurate or not, Lucretius's account of the matter is not much less coherent.

After the first-beginnings had tried all kinds of combinations, 'those particles at length meet, which, being suddenly carried together, often become the rudiments of great things, of earth, sea, and heaven, and of the race of living creatures.' At the first stage of the world's history, neither sun, star, earth, air, nor sea was yet in existence. 'Nor could any substance be seen like to our substances, but a kind of strange storm and medley made of atoms of every kind, whose lack of harmony caused a conflict, and disordered their interspaces, passages, connections, weights, blows, clashings, motions, because, by reason of their unlike forms and different shapes, they could not all remain thus joined together nor unite in harmonious motions.' Gradually, however, this chaos ceased; like atoms joined like, and thus earth, sea, air, and ether began to exist separately. How did this come about? Lucretius explains the matter most ingeniously. 'First of all the several bodies of earth, because they were heavy and closely entangled, met together in the middle, and took up all the lowest posi-

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are driven to the same spot as the longish ones, and the round with the round.' The comparison of atoms to living things seems childish; we may remember his doctrine that 'all things partake in some degree of life' (see Chapter XIV.).

tions, and the more they grew entangled, and came closer together, the more did they squeeze out those particles which were to make the sea, stars, sun, and moon, and the walls of the great world, for all these are formed of smooth and round seeds, and of far smaller elements [*i.e.*, atoms] than is the earth.' Last of all, the fiery ether burst out of the pores of the earth, just as we now see mists rise from earth in the morning; and as the mists unite and vault the sky with clouds, so these particles of ether, rising because of their lightness, united and formed a vast shell, fretted with golden fires, surrounding the earth in a wide circuit. 'In this way the light and nimble ether grew into a body, and, encircling the rest, arched itself on every side, and spreading widely in all directions round about, it thus shut in all the rest with its greedy embrace.'[1] After ether rose the elements of sun and moon; these, being too light for the earth, and 'not light enough to glide along the upmost borders,' and rise to the ether, join in spheres, and float midway between the two. The departure of all these particles from the earth caused a hollow, and into this the waters collected and formed the sea. The more that the lighter elements were forced out, the more hard and solid did the central mass—the earth—become. 'And day by day, the more that the heats of ether round about and the rays of the sun compressed the earth on all sides by their repeated blows into a close mass—so that, being thus buffeted, it was condensed and consolidated at its centre—ever the more did the salt sweat, forced out from its body, increase the sea and its floating fields, by its oozing, and ever the more did those many particles of heat and air escape and fly abroad, and, by condensing, form the high and shining regions of the heaven far away from earth.'[2]

The earth, thus formed, rests stationary in the middle

[1] 'Avido complexu' (again used of the ether at ii. 1064). The metaphor is most expressive. Compare v. 202.

[2] v. 432-508.

of the world. How, then, is it kept in its place if it be surrounded below, as well as above, by air and ether, both lighter than itself? Lucretius explains this in a most ingenious way.[1] Earth, air, and ether, he says, are not bodies alien to each other, and forced together. On the other hand, 'the earth was conceived together with the air at the first birth of the world, and is a fixed portion of that world, just as our limbs are seen to be to us.' Earth, air, and ether are parts of one organic whole. 'They cohere together with common roots, conjoined and formed into one being from the beginning of their existence.' The earth 'is embodied, and lives' in the air and ether.[2] In this way the earth is able to rest in the middle of the world, because its weight gradually passes away and is lessened, from the centre outwards. Thus the earth does not weigh down the air beneath it, any more than our limbs or head burden our body. The air and ether, though so subtle in texture compared with the earth, are able to hold it up because the earth and 'the airy portions of the world' are closely conjoined and

[1] v. 534-563.

[2] I quote Mr. Munro's rendering. Lucretius speaks of the earth as—

> 'Ex ineunte ævo coniunctam atque uniter aptam
> Partibus æriis mundi quibus *insita vivit.*'
>
> v. 537, 538.

Is this merely a metaphor? It is hard to say. Lucretius's explanation does remind us of the Stoic doctrine of a 'sympathy' between the different parts of the world, as seen, for instance, in those changes in plant-life and animal-life or in the tides, which accompany the waxing and waning of the heavenly bodies. Zeller warns us that this sympathy (*συμπαθεία*) meant no magic connection—an idea which came later with neo-Platonism—but merely the coincidence of phenomena in heaven and earth. It does look as if Lucretius (if such a back-sliding were possible for an ardent Epicurean) were here going over towards the Stoic doctrine that the world is an organism, one grand living Creature. Such a charge of heresy would indeed demand the strongest proofs. Yet Lucretius here and elsewhere does speak as if the world (not the earth) were an organism of a kind. (See Chapter XIII. and note).

form one being—indeed, one organism. Similarly, the soul, though extremely light compared with the body (*tenuissima vis animai*), is able to support, and even at will to lift it with a sudden leap, because it is so closely united with it—

'Propterea quia tam coniuncta atque uniter apta est.'

Thus it comes that the earth floats in the middle of a sea of air surrounded by an outer space of ether.

How, then, we cannot help inquiring, does the world hold its place in the universe? As we have before shown, it is difficult to be certain how Lucretius explained this. It seems to me almost certain that he supposed the outer globe of air and ether to buoy up the heavy core of earth by their extreme lightness, and thus to enable it to float amid the ocean of atoms. No doubt all things tend downwards from gravity, he has said, but the blows of the atoms streaming up from below to feed the world with matter would be more than sufficient to keep so buoyant a sphere suspended in its place.

It is thus, as we have seen, to a chance combination of the atoms that Lucretius supposes our world to owe its birth. And, in the same way, new worlds are being ever struck into being by the atoms ever battling in infinite space—bubbles formed on the surface of the infinite torrent of matter, and lasting for a while ere they break. Lucretius does not suppose that all the worlds are like our own earth. 'In other parts of space there are other worlds and different races of men and kinds of wild beasts.'[1] 'Throughout the universe the various worlds are formed on various plans.'[2] The disciples of Leibnitz held the remarkable opinion (which has been

[1] 'Necesse est confiteare,
Esse alios aliis terrarum in partibus orbis
Et varias hominum gentis et sæcla ferarum.'
ii. 1074-1076.

[2] 'Per omne
In variis mundis varia ratione creatis.'
v. 527, 528.

designated by the term 'optimism') that ours is the best of all possible worlds.[1] Lucretius does not decide this point.

In the infinite space worlds are constantly being born or passing away. According to Democritus, whose opinion Epicurus here follows, 'there is an infinite number of worlds, differing in size: some have neither sun nor moon, in others the sun and moon are larger than our own, and in others there are more than one of each. The distances between the worlds are unequal: in one part the worlds are more numerous, in others fewer; some are increasing in size, others are full-grown, others are wasting away; here they are coming into being, there they are ceasing to be; they are being destroyed, too, by collision with one another.'[2] Epicurus held that the worlds are not all of the same form. 'Some are round, others are egg-shaped, others have different forms,' some being triangular. But there is a limit to the number of shapes.[3]

What, then, does Lucretius conceive our own world—the little corner of infinite space and infinite matter wherein we live—to be like? Every world—that is to say, every system containing an earth, heaven, and heavenly bodies like our own, all which he and Epicurus include in the name 'world'[4]—every world is walled in by an outer circuit of ether, studded by stars, which Lucretius conceives to be fires fed by the substance of

[1] Leibnitz's own doctrine (caricatured in 'Candide') is not that our own particular 'world' is better than other worlds, but that the universe is the best possible universe ('Principles of Nature and Grace,' 10; 'Monadology,' 53, 54).

[2] Hippolytus, 'Ref. Hær.,' i. 13.

[3] Diog. L., x. 74, 88.

[4] 'A world is a section of the heaven, cut off from the infinite, containing heavenly bodies (ἄστρα) and earth, and all visible bodies therein. This section is terminated at its extremities by an outer shell which may be either thin or dense, revolving or stationary: it may be either round or triangular, or of some other shape; for it may be of any shape' (Epicurus's Letter to Pythocles, x. 88).

the ether. This outer rampart of ether, set with the star-fires which it feeds, Lucretius is fond of calling by a noble phrase, 'The flaming walls of the world'—

'Flammantia mœnia mundi,'

and he conceives it to act as a barrier against danger to the world from without. In his description of the end of the world, it is the *mœnia mundi* which first 'are stormed' and give way.[1] The stars move either in the ether,[2] or along with it. Within this is an inner circle of air, in which move the sun and moon, floating midway between earth and ether. The earth itself occupies the centre; and since air, ether, and heavenly bodies are all formed from the lighter or more fiery particles which have escaped from the earth, probably Lucretius supposes the earth to form a very large part of the world, and to occupy most of the space contained within it.[3]

[1] i. 1102, 1103; ii. 1148, 1149.

[2] 'Sive ipsi serpere possunt
Quo cuiusque cibus vocat atque invitat euntis,
Flammea per cælum pascentis corpora passim.'
v. 522-525.

[3] Lucretius does not in the least realize what the actual size of the sun and heavenly bodies is.

'Nec nimio solis maior rota nec minor ardor
Esse potest, nostris quam sensibus esse videtur.'

The stars also are about the same size as they appear to us, perhaps a very little larger, or a very little less.

'Scire licet perquam pauxillo posse minores
Esse vel exigua maioris parte brevique.'

This sounds ludicrous to us. At the same time, if we examine the facts of observation quoted by Lucretius in support of this conclusion (namely, experiments as to the apparent size and brightness of fires on the earth when observed from a distance), and the way in which he treats these facts, we see that his method of approaching this question (though it has led him to such a conclusion) is by no means so very unscientific as we might suppose (see v. 564-591). It is surprising, as Mr. Benn points out, that some of the Stoics formed an estimate of the relative size and distance of the heavenly bodies which at least approximated

This whole system—earth, air with sun and moon, and the outer shell of ether with its stars—Lucretius calls the world.

Though the all-enclosing ether 'holds the world in its greedy embrace,' yet it allows free passage to the atoms which, as we have seen, are ever streaming up out of the infinite void to feed the world and keep it in being. 'On every side through all the pores of the ether, and, as it were, through the breathing places of the great world all round it, a free passage out and in is given to the atoms.'[1] Thus is our world vitally related to the infinite outer spaces surrounding it. It must be ever fed out of the infinite surrounding sea of matter, or it must waste away, break up, and die.

One cannot help realizing how different is the picture of the world, as painted by Lucretius, from that which Epicurus would have drawn for us—hard, cold, and colourless. In all scientific details, Lucretius follows his master step for step; but how different is the result! Lucretius fills us with a sense of the wondrous origin and hazardous maintenance of the world; of the stupendous encircling forces whose counterpoise preserves it, but which may at any moment shatter it amid their play, as it were; of the piteous helplessness of man whose home is set

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to the reality in a remarkable manner. Thus Posidonius estimated the sun's distance from the earth at 500,000,000 stades—that is, about 57,000,000 miles, and the moon's at 227,000 miles. According to one account, he reckoned the sun's diameter at 440,000 miles, about half the actual amount. (See Benn's 'Greek Thinkers,' vol. ii., p. 10; Zeller, 'Stoics, Epicureans and Sceptics,' p. 190, note 2.)

[1] 'Undique quandoquidem per caulas ætheris omnis
Et quasi per magni circum spiracula mundi
Exitus introitusque elementis redditus extat.'
vi. 492-494.

Compare the following lines referring to the human body:

'Donec materies, omnis concussa per artus,
Vitalis animæ nodos a corpore solvit
Dispersamque foras per caulas eiecit omnis.'
ii. 949-951.

in the lap of powers so reckless; of the richness and loveliness of the earth which, though besieged with dangers on every hand, flowers into fresh beauty and life every spring-time, though another year may never come to it. Nothing of this could Epicurus have given us. If we look merely at a single point of the Epicurean cosmogony, the notion of the ether which Epicurus adopted from the early Greek philosophers—how majestic a conception is it as Lucretius is fond of picturing it, 'the flaming walls of the world,' a fiery bastion guarding the earth, and walling it in from the infinite outer seas of space, filled with infinite atom-dust. The imagination must be dull indeed that is not touched by its grandeur. Before me lies a much-worn copy of an early edition of Lucretius's poem, on the yellow fly-leaf of which some lover of the poet, centuries ago, has written in antique letters the words—

'Extra flammantia mœnia mundi!'

5. Lucretius finds little difficulty in giving an atomic explanation of the origin of life upon the earth. He has shown already that life is only a mode of motion of dead matter. He asks—seemingly without any shadow of misgiving—Do we not see life produced on a small scale before our eyes at any time, when rotting substances under sun and rain bring forth worms? In the same way, the earth long ago produced all the living creatures. It is only because the earth is old, and past her season of bearing, that she now produces only small creeping things. Long ago, 'in the fresh time of the earth and ether,' she was able to bring forth mightier offspring, even 'the huge bodies of wild beasts.' It was then, in her lusty youth, that she gave birth to all creatures that enjoy the light. The young earth first put forth grass and trees. The great outburst of creative activity in growing things is pictured in a line which comes home to us every year when the spring waxes strong and the trees are striving which shall outrace the other with its buds or burst soonest into full leaf. 'Next, the trees of

various kinds run a race with each other, like horses speeding at full gallop, as they climb up into the air.'

> 'Arboribusque datumst variis exinde per auras
> Crescendi magnum immissis certamen habenis.'[1]

Next, the higher forms of life were produced, living creatures of every kind, which sprung up, 'many in number in many ways, after diverse fashions'—

> 'Multa modis multis varia ratione coorta.'

First the earth produced eggs from which birds were hatched in the spring-time.[2] Men came into existence in a more complex fashion. 'For much heat and moisture then abounded in the fields, and therefore, wherever a suitable spot occurred, there would grow wombs fastened to the earth by roots.' Within these wombs were infants, and as the natural warmth of the living creatures in course of time caused these *uteri* to open, then just in the same way as happens to the mother when a child is born, 'Nature would turn to that spot the pores of the earth, and compel it (the earth) to yield from its open veins a liquid exactly similar to milk.'[3]

[1] v. 787. I have tried faithfully to give the force of these untranslatable lines. The metaphor is bold and truly Lucretian; no 'conceit,' but studied in the woodland.

[2] After l. 804 there is apparently a lacuna. The account of the *modi multi* in which various animals were produced by the earth, which Lucretius begins to explain with a *principio* at l. 801, particularizing further by *tempore verno* at l. 802, is plainly incomplete. Apparently, too, from the general context, as well as from l. 801, Lucretius must have meant to tell us something about the *order* in which the different creatures came into existence.

[3] 'Multus enim calor atque umor superabat in arvis.
Hoc ubi quæque loci regio opportuna dabatur,
Crescebant uteri terram radicibus apti;
Quos ubi tempore maturo patefecerat æstus
Infantum fugiens umorem aurasque petessens,
Convertebat ibi natura foramina terræ
Et sucum venis cogebat fundere apertis
Consimilem lactis, sicut nunc femina quæque
Cum peperit, dulci repletur lacte quod omnis
Impetus in mammas convertitur ille alimenti.'
v. 806-815.

In this remarkable notion of *uteri* growing on the earth, is there any reminiscence of the Empedoclean doctrine that the different bodily organs came into existence separately and apart from each other ?[1] The notion of streams of milk flowing from the earth to feed her infant human offspring may have been suggested by the myths of the Golden Age. If this be the case, it may have seemed not so unnatural to Lucretius's contemporaries, who were familiar from their childhood with the legend of a far-off happy age, when—

> ' Flumina iam lactis, iam flumina nectaris ibant.'

But Epicurus probably derived the notion from Archelaus,'[2] who taught that ' living creatures were produced from the earth when it was hot, and that the earth sent forth a thick mud resembling milk for their food, and that she produced men also in this way.'[3]

We must not estimate by the present the powers of production which the earth possessed in its lusty youth. It was then fuller in substance, and contained ' many seeds of things ' which it has now lost.

> ' Multa fuere in terris semina rerum
> Tempore quo primum tellus animalia fudit.'[4]

About the same period the earth produced both animals and men,[5] and after this, ' like a woman exhausted by age, she ceased to bear.'

[1] Aristotle, ' De Cælo.,' iii. 2.

[2] Diogenes tells us that according to Diocles, ' of all the older philosophers Epicurus was most in agreement with Anaxagoras (although in some points opposed to him) and with Archelaus, the teacher of Socrates ' (Diog. L., x. 12).

[3] *γεννᾶσθαι δὲ φησι τὰ ζῶα ἐκ θερμῆς τῆς γῆς καὶ ἰλὺν παραπλησίαν γάλακτι δίον τροφὴν ἀνιείσης· οὕτω δὲ καὶ τοὺς ἀνθρώπους ποιῆσαι* (Diog. L., ii. 17). This passage is referred to by Reisacker (' Questiones Lucretianæ,' 1847, p. 64).

[4] v. 916, 917.

[5] ' Genus ipsa creavit
Humanum atque animal *prope certo tempore* fudit
Omne quod in magnis bacchatur montibu' passim

In this era of productiveness the earth 'attempted to bring forth' (*creare conatast*) all kinds of monstrous creatures, some half man, half woman, some without feet or hands or mouth or eyes; some with limbs adhering to the trunk. All these the earth produced, *nequiquam*, says Lucretius, 'all in vain,' since they were unable to preserve themselves from danger, or to secure food, while some were isolated productions, and others organically unfit to reproduce themselves. Lucretius appears to think that every kind of monstrous creature which could possibly exist must have been produced by the earth at this time, while out of them all, only the few adaptations were preserved. Just as the atoms tried every kind of combination possible before they could strike into the order necessary to create the world—

> 'Namque ita multa modis multis primordia rerum
> Omnimodisque coire atque omnia pertemptare,
> Quæcumque inter se possent congressa coire'—

so living creatures, misshapen with every degree of bodily deformity possible within any given type, must have come into existence before the few organic forms fit for continuance could be selected by Nature for survival.[1] 'Every other monster and portent of this kind earth would produce, but all in vain'—

> 'Cetera de genere hoc monstra ac portenta creabat,
> Nequiquam——'

A new vista this in the long process of Evolution, and not a lovely one to look down—one that haunts the mind

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> Æriasque *simul* volucres variantibu' formis.
> Sed quia finem aliquam pariendi debet habere,
> Destitit, ut mulier spatio defessa vetusto.'
>
> v. 822-827.

Do the words 'prope certo tempore' refer to the production of animals only, as their position would imply, or to that of man also? Here, as in the preceding section (v. 783-820), which is probably unfinished, Lucretius speaks vaguely on this point.

[1] Mr. W. K. Parker refers to Lucretius's theory of the origin of man from *uteri* on the earth and of the production of monsters as 'curious, abortive, unreasonable Darwinism.'

with the possibility of infinite aimless suffering on the part of these helpless and ludicrous monsters created, *nequiquam*—that is to say, created only to be tortured out of existence by *Natura* as soon as possible.[1] Darwin's theory of Evolution is at least not distorted by any such horrible fancy as this. The notion is hideous, and, were it true, even the survivors fortunate enough to be left by such a process could hardly congratulate themselves. Such waste of suffering might make us sympathize so far with Schopenhauer's declaration that consciousness is the great mistake of the universe. The earth is a grim enough place, but the fancies of certain philosophers make its shadowy corners even darker. To most of us, indeed, 'l'homme qui rit' is sufficiently horrible, but that monster was made by the devilishness of man and not of Nature. Lucretius was not unfeeling, but the reverse, and if he only half realized the horrors of a long era when the earth was covered with millions of crippled and misshapen creatures, ever fatally baffled by their own deformity and helplessness, created only to suffer, it would be no wonder if his fancy had been visited by processions of sad and misshapen figures, groaning to each other—a bestial or human Goblindom, horrible as the *miræ figuræ*, the 'strange shapes,' which, as he complains, haunted and made terrible his dreams.

Lucretius insists that all this production of organic forms must have gone on according to Law. Among all the abortive types which Nature may have produced, no such thing as a Centaur—half man and half horse—or the Chimæra—in part a lion, in part a dragon, in part a goat —can ever have existed. It is not possible for the limbs of different creatures to be combined in a single frame, because 'each thing goes on after its own fashion, and all preserve their distinctions after the fixed laws of Nature.'[2]

[1] Compare v. 877 :

'Donec ad interitum genus id natura redegit.'

[2] 'Sed res quæque suo ritu procedit et omnes
Fœdere naturæ certo discrimina servant.'
v. 923, 924.

The monsters of necessity perished. But many kinds of animals must also at one time have lived, which in the fierce struggle for existence must have gone to the wall. Only the possession of some special quality, such as courage, speed, craft, has enabled each race to exist and continue its kind. Some animals, such as dogs, oxen, sheep, are useful to man, and have in return been preserved through his protection.[1] Such as neither had natural properties to depend on nor were useful to man, 'lay exposed a booty and a prey to others,' and died out in the fight for existence.

'Donec ad interitum genus id natura redegit.'

'That species Nature utterly destroyed.' Lucretius sees as clearly as any Darwinist the pitilessness of Nature. In attributing the dying out of such species not to internal unfitness for life but to outward conditions, the competition with other individuals or species in the struggle for food, there is certainly more than a glimpse of Darwin's great principle.

I can only touch on Lucretius's account of the progress of civilization. Men were at first far hardier and sturdier. They lived like the beasts of the field, feeding on acorns or other fruits of the earth, which were then larger, more abundant, and more varied than now. They had no homes, but lay down and slept wherever night overtook them, covering themselves up with leaves. They had neither fire, houses, nor clothes; they had no laws, and marriage did not exist. As they grew more civilized, marriage became established, and in this Lucretius sees the origin of all the progress of humanity. 'Then first mankind began to grow gentler. . . . Then, too, neighbours began to join in a league of friendship, mutually craving neither to do nor suffer harm, and they begged for indulgence to children and womankind, declaring in halting speech and by gestures that 'twas right for all to show mercy to the weak.'[2] It is absurd to suppose that

[1] v. 855-861. [2] v. 1011-1027.

any one man could have invented speech. Nature prompted men to apply different sounds to different things, just as we see brutes express different feelings—anger or fondness —by differing cries. Lightning or the friction of trees revealed to them the use of fire. By degrees towns, kings, and laws came into existence; also money, with its attendant evils. Then he shows how religion took its rise, and filled the hearts of men with fears. 'O hapless race of men, when first they attributed to the gods the movements of sun and moon and wonders of the heavens, and saw herein signs of their anger! How many sorrows did they then beget for themselves, what wounds for us, what tears for their children's children!'[1]

When we review Lucretius's explanation of the origin and history of life upon the earth, we see that it is based on a clear perception of Darwin's doctrine, that in the organic world none but the fittest continue to exist, because these alone have been able to perpetuate themselves. Beyond question, Lucretius had a firm grasp of this central doctrine of Darwinism.

Are we, then, to give Epicurus the entire credit for this anticipation of modern science? Certainly we cannot. There is no doubt that Epicurus, in his exceedingly shrewd eclecticism, which borrowed, among other things, the notion of *ἀπόρροιαι*, or 'effluxes,' from Empedocles to

[1] v. 925-1240. After this Lucretius returns to the discovery of the use of metals, first found out when ore was melted by the forest fires; and to the growth of the various arts of war and peace. This part of the poem contains several sections evidently out of place. This is no sign of flagging mental power. They are additions meant to be worked in, but the time never came.

Mr. Clodd claims Lucretius as 'a pioneer of evolution' on two grounds—his assertion of the primitive savagery of man, and his explanation of the origin of belief in the soul and the future life. As to the first, anthropology, he says, 'during the last sixty years has done little more than fill in the outline sketched by Lucretius's insight.' As to the second, Lucretius 'anticipates well-nigh in detail the ghost theory of the origin of belief in spirits generally, as formulated by Herbert Spencer and Mr. Tylor, ('Pioneers of Evolution,' by E. Clodd, 1897, p. 28).

explain the phenomena of perception, making it the basis of his psychology, and the notion of atoms from so opposite a thinker as Democritus to make it the basis of his science, in each case no doubt correcting and greatly developing the opinion of his masters—there is no doubt that Epicurus adopted his doctrine of the origin of life and species from Empedocles, who believed in the production of organisms immediately through the fortuitous combinations of the elements,[1] and in the final preservation of the fittest, while the others perish as they are produced. But when we look into the matter, we find how crude was Empedocles's notion compared with Epicurus's development of it. According to Empedocles, the several organs of animals, such as eyes or arms, came into existence separately, each without bodies, and wandered about thus, till the combining tendency of Nature united them in complete organisms. Empedocles believed also in the past existence of unnatural monsters, with limbs heterogeneously blended, whose existence Lucretius shows to be against law and impossible. Both of these notions Epicurus sets aside. Beyond question, ancient Greece can not unfairly claim to have originated and developed the doctrine which Darwin has revived under the name of Natural Selection.

6. Lucretius casts teleology away. Neither the world nor the human body, he says, shows any trace of design. 'Nay, if I knew not what the first-beginnings of things are, yet, judging from the very arrangements of heaven, this I would dare to affirm, and to maintain it from many other facts: that the nature of things has in no wise been made for us by Divine power, so great are the defects it stands encumbered with!'[2] So much of the earth is

[1] At the same time, in Empedocles's hands, this doctrine is not connected with any disbelief in Divine power. It was Empedocles whom, from his intensely religious mental attitude, Aristotle calls a scientific θεολόγος. Moreover, we must remember that Empedocles's material elements, which he calls Dæmons, are Divine.

[2] v. 195, 205. The following passage is quoted in full in Chapter XVII.

covered with rocks and swamps, so much subject to burning heat and intolerable cold! So hard a fight has the tiller of the ground with weather, thorns, and weeds! Our eyes, feet, hands were not made for our sake, that we might see, walk, labour; 'nothing in our body was produced in order that we might use it, but that which is produced begets for itself a use.'[1]

It was this mental attitude, however one-sided it may be called, which caused Epicureanism to become more fruitful in science than any other ancient philosophy. The habit of constantly explaining natural phenomena by final causes induces, as Lord Bacon says of Plato and Aristotle, 'a neglect in searching after physical causes.'[2]

The Darwinist point of view is well given by W. K. Parker. Referring to the difference between the comparatively simple teeth of the Norway rat and the domestic mouse, both of which are omnivorous, and the composite grinders of the water-rat and the short-tailed field-mouse, both almost pure vegetable feeders, Parker says: 'If we compare the structure of the organs of any particular group of animals, we see that each minor variation has reference to some peculiarity in the habits of the creatures so varied. But the Darwinist believes that these modifications took place in time, through the influence of the surroundings upon a delicately balanced organism, ever sensitively alive to the influences that play upon it—ever ready to respond to the wants and instincts of the creature. . . . Gentle modifications of this kind, very small variations accumulating during long secular

[1] See book ii., 165-183; iv. 823-857; and v. 156-194 and 195-234. (Do not ll. 156-158 make the transition to 195-234 most natural?) In the first passage Lucretius promises to prove that the gods have not 'arranged all things for the sake of man,' and in the latter ones he fulfils this promise. All of these passages reject or disprove the doctrine of final causes, and both Lachmann and Munro hold that all of them (except v. 156-194) were not in the poem as at first composed, but were subsequent additions by the poet, written on the margin, 'which he did not live to incorporate with the rest of his work.'

[2] See Chapter XVI., where Lord Bacon is quoted at length.

periods, in every case in harmony with the habits of the creature, slowly or even suddenly changing with changing conditions of temperature, food, fresh needs for safety, and the like—all these things have to be taken into account.'[1] He goes on to refer to the holly-leaves, smooth on the top of the tree, and armed with prickles below, 'lest the ox that licketh up the grass should lick them up also'; and he asks, Was each kind of leaf separately created? 'No,' he answers; 'no need for that. They each and all have answered to their surroundings; the forces within the tree, working in exquisite harmony with their surroundings, sufficed to make all that difference in the form of the individual leaves.'[2] But we must demur somewhat to Parker's comment: 'Of course, the watch did not make itself, but its works were not more certainly intended to mark the lapse of time than a beaver's teeth to cut down the willows of the brook. But we get a curious mixture of folly and irreverence where the poor human watchmaker is compared to the Power that lies behind all organic machinery.' Such comparisons, it is true, have often been worked out in the most presumptuous way, yet this irreverence is not necessarily implied in them. After all, are not Reason and Will common attributes of the poor human watchmaker and of Deity?[3]

Lucretius follows Anaxagoras, who contended that 'man is the most intelligent of the animals, because he has hands.' Aristotle criticized this doctrine as follows: 'It is reasonable that man should acquire hands, because he is most intelligent, for hands are an instrument, and Nature, like a prudent man, always distributes each several instrument to the one who is able to use it.'[4]

[1] 'Mammalian Descent,' pp. 221, 222. [2] *Ibid.*, p. 121.

[3] Thus Sir John Herschell shows that the very fact that we can track out and comprehend the processes of Nature proves that the mind which designed these laws is in some respect similar to our own.

[4] 'De Partibus Animalium,' p. 687 A.

Martineau holds that the 'law of economy' laid down by Milne Edwards completely justifies Aristotle's position. According to Lucretius, the use comes from the organ; but according to Martineau, the 'law of economy' exhibits to us the inverse order. 'It is the function that looks out for the organ: selects and modifies it, if it be there, and if not, builds the organ and incorporates it in the type.'[1]

7. Can it be said that Lucretius had any notion of Evolution? It is certain that his philosophy implies Evolution; and he may fairly be taken to support it, though, of course, his conception of such a process must have been of the vaguest kind, speaking from a modern standpoint. It is easy to see that some minds in antiquity—members of the Epicurean sect in particular—felt a strong repugnance to the popular belief in a Divine Being constructing the world after the methods of a human artificer. The Epicurean spokesman in Cicero's treatise, 'On the Nature of the Gods,' expresses this thought very distinctly.[2] In very remarkable language he says: 'The philosopher who taught us all we know'—that is, Epicurus—'has shown us . . . that the world was made by Nature, and that there was no need of any workshop to construct it in.' And again: 'In this infinitude of breadth, length, and height are fluttering about an infinite number of innumerable atoms, which, though with void space interposed between them, still cohere, and, clinging to one

[1] 'Study of Religion,' vol. i., p. 358.

[2] See especially chaps. viii. and xx. of book i. The original of the passage quoted is most expressive in its wording: 'Docuit enim nos idem qui cetera, natura effectum esse mundum: nihil opus fuisse fabrica. . . . In hac igitur immensitate latitudinum, longitudinum, altitudinum infinita vis innumerabilium volitat atomorum, quæ interiecto inani cohærescunt tamen inter se et aliæ alias apprehendentes continuantur, ex quo efficiuntur eæ rerum formæ et imagines quæ vos effici posse sine follibus et incudibus non putatis' (i., c. 53, 54). According to Lecky, Cicero's account of the Epicurean system is one of the grandest examples to be found of 'sublime and scrupulous justice to opponents' ('History of European Morals,' vol. i., p. 185).

another, are massed together, whence are made those forms and shapes of existing things, *which you think cannot be produced without the help of bellows and anvils.*' Could even Tyndall have asserted more pointedly the self-developing, formative tendency in matter, which dispenses with an outside Divine mechanist ?

Commenting on the fact that men, animals of every kind, grains of corn, shells on the seashore, if we compare specimens of them together, are all different one from the other, he points out that Nature's style of production differs from that of man. All these objects, he says, 'exist by Nature, and are not manufactured by hand after the exact model of one.' Lucretius, like Tyndall, is opposed to the conception of an 'Artificer in the universe, fashioned after the human model, and acting by broken efforts, as man is seen to act.' Had Lucretius become acquainted with the modern theory of Evolution, beyond question he would have eagerly embraced it, as filling the gap in his system, only that he seems, strange as it may appear, not to have been conscious that there was any gap. His theory of atoms, and his principle that 'Nature is seen to do all things spontaneously of herself, without the meddling of the gods,' clearly point this way. They show us that a wholly new conception of Nature, as the one and self-working power, manifesting itself in the world, was abroad in the air. Such a conception, even though Lucretius cuts it clear from the notion of one all-ruling and ever-working Divine Will, could not fail to work in men's minds as soon as they took it in. It must speedily have rooted itself in the thought of every intelligent reader of his poem, and have grown up and born fruit. Lucretius himself may formally insist that his *Natura* is only an abstraction, yet it is an idea which perceptibly modifies and influences his view of the world at every moment.

On comparing Lucretius's theory of the purely atomic origin of the world with modern theories of a similar kind, two things strike us.

In the first place, Lucretius explains the origin and continuance of life in the same way as Clifford explains the origin of the first molecule of living matter. Clifford's words may hold true for both, when he says that the first molecule of protoplasm was 'produced by a coincidence and preserved by natural selection.'

Secondly, would Lucretius ever have approved of any system of Evolution which involves the gradual transformation of species into each other? He has stated repeatedly and most strongly the permanence and distinctness of all natural types. His definition of species certainly does not include the capacity of varying. Whatever some of the early Greek philosophers may have held,[1] we find in Lucretius no trace or hint of any modification of the organism being produced by the environment. Here his theory of Evolution differs essentially from the Darwinian. According to Lucretius, it is the marvellous procreative power of the earth which, after infinite production and infinite annihilation of different types, at last produces an organism so framed that it is able to survive. Lucretius would at once have joined battle with Lamarck and Darwin as to the possibility of an organism being modified by its environment. Apparently he believes that a living creature must cease to exist on the slightest change of its form or type. For both organic and inorganic things, his conception of Law made him rigidly realize the consequences of *change*, which he has thus expressed: 'Whenever a thing is changed, and leaves its limits, this brings at once the

[1] Anaximander, who lived after 600 B.C., held that man was descended from a fish, and that animals only developed legs and other organs after the waters which originally covered the earth had dried up. He gave a remarkable reason for believing that man was born from animals of a different species—namely, that 'while the other animals readily find food for themselves, man alone requires a long period of suckling. Hence, had he originally been as he is now, never could he have survived' ('Ritter and Preller,' 16).

death of that which was before.'[1] Within these limits Lucretius clearly realizes that there is free play for variety ; no two men, beasts, birds, fishes, grains of corn, shells on the seashore are exactly like each other :

> ' Quorum unum quidvis generatim sumere perges,
> Invenies tamen inter se differre figuris.'[2]

At the same time, he holds that no species can by any possibility merge into another, unless the individuals belonging to it be first broken up into their component atoms, and then refashioned by the moulding hands of Nature after a different model. Had the theory of variation of species been actually presented to Lucretius by any contemporary philosopher, we can easily imagine him denouncing it from the standpoint of Epicurean science, because it contradicts the law of fixity of type, criticizing it shrewdly enough, and asking where in Nature we see one species passing by long leaps, or even by short ones, into another. ' No,' he would have said, ' the *alte terminus hærens*, "the deep-set boundary-stone," which marks the division between species and species, cannot be rolled and shifted in this way.' *Perdelirum esse videtur !* would have been his very mildest sentence. From Lucretius's point of view, Darwin himself would have agreed to this. In the ' Origin of Species,' he acknowledges that we can hardly help believing species to be immutable so long as we hold, as Lucretius did, that the world has been a comparatively short time in existence.[3]

[1] ' Nam quodcumque suis mutatum finibus exit,
Continuo hoc mors est illius quod fuit ante.'
ii. 753, 754 ; repeated at i. 792, 793.

[2] ii. 333-380, where Lucretius dwells on the distinct individuality of all living things, and in illustration of this draws a most pathetic picture of the cow seeking the calf which has been taken from her, and whom no other calf will satisfy.

[3] ' If the groups made by zoologists—varieties, races, species, genera, families, etc.—are merely convenient pens into which we may put our cattle according to the nearness or distance of their relation to each other, then it is evident that there are no absolute

Lucretius is often spoken of as one of the founders of the doctrine of Evolution. But how incomplete, how childish almost, his scheme of Evolution is! Nothing whatever exists, he asserts, but atoms and void; and in these atoms no mind dwells, nor does it work upon them from without. Mind, he assures us, is only a function of dead matter; 'consciousness' he takes for granted. It has come into existence somehow, and he never attempts to explain it. Give them only time enough, and the ever-tossing atoms cannot fail to combine together, so that a world must be produced. Once formed, such a world, he further assumes, must continue to exist. If mind be to any extent immanent in matter, we can indeed conceive matter evolving itself into the world with all its teeming life. But all that Lucretius allows for is a mere juxtaposition of atoms. A mere assemblage of atoms, in larger or smaller quantity, does not constitute any 'thing,' whether that thing be

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distinctions between the groups' (W. K. Parker, 'On the Origin of the Higher Animals,' *Contemporary Review*, 1885, p. 858). The writer just quoted, himself the most thorough-going of Evolutionists, and at the same time a devout Theist, has stated the difficulty admirably: 'We may liken the present animal creation to a high staircase—Monad the first step, Homo the top one. Homo, however, does not—nor, as for that, do the others—appear to have gone up obliquely, but vertically, as if the staircase had been constructed perpendicularly, and all the substructure taken away afterwards, for it is all gone.' The lack of the stepping-stones which ought to lead from one organic form to another and higher one, is supplied by what Parker calls the 'free use of the scientific imagination.' Of one such instance, he says: 'We have to feign to ourselves, to imagine hypothetically, *an almost infinite number of forms* between these two strange creatures (the Galeopithecus and Aye-Aye, a kind of Lemur) and the Bats, *forms that appeared for a time and then vanished away*' ('Mammalian Descent,' p. 189).

The marvellous insight of Darwin has collected a vast body of correlated facts. But it is felt that his own special theory of Evolution only partially expresses the mutual relation of these. The next step towards the solution of the problem must come from philosophy.

a living man or a mass of stone or iron. A purely atomic world, formed by chance, could contain no abiding principle, and must dissolve again like a view in a kaleidoscope. When confronted with Lucretius's explanation of the world, the normal human mind is at first taken by surprise, so assured, so confident, is his materialism! His conviction impresses us the more because it haunts the whole poem, so that we breathe it in the air; even more because it is everywhere latent, and our assent is assumed, than because it is often directly preached. Soon, however, we recover ourselves, and ask, But what of the 'Form,' the individual essence informing each thing? What makes the rose which I hold in my hand a rose, and not some other flower? What is the cause of its vivid individuality, persisting to endless generations of roses? What is the 'directive force' which the growth of the flower obeys? Lucretius utterly ignores all such questions. He writes as if Plato and Aristotle, centuries before him, had never discussed them. No wonder that Leibnitz scornfully rejected the Lucretian atoms as an explanation of the world, and set up in their place his marvellous monads, 'formal atoms,' each with a living principle within it, and 'expressing' to some extent the rest of the universe.[1]

One can hardly think about Lucretius's explanation of the origin of the world without remembering how similar a position is held by some others at present. Their line of argument stretches boldly in the same direction, while it is broken by fewer gaps. In the following chapter an attempt is made to outline the modern argument for Materialism, where it labours to build in the gaps which Lucretius was compelled to leave.

[1] See the later chapter on 'The Conflict of the Atoms and the Forms,' vol. ii.

CHAPTER VIII

HOW MODERN SCIENCE BRIDGES OVER THE GULF BETWEEN ATOMS AND LIVING THINGS—THE CONTROVERSY AS TO THE POTENCY OF MATTER

As we have seen, Lucretius, in spite of all his ingenuity, is compelled to leave an impassable gulf between dead atoms and the world with all its life. The modern Materialist has borrowed from science abundant store of materials with which to build a bridge over the gulf, and has spared no labour in the attempt to construct it. Compared with Lucretius he has, indeed, marvellous resources at his command. Newton's *Principia* has appeared. The theory of Gravitation has wrought a vast change—indeed, a revolution—in science which must also affect the whole world of thought. 'The apparently innocent statement that every particle of matter attracts every other particle with a force which is a function of the distance between them carried the mind away from the merely *falling* atoms of Epicurus and Lucretius to conceptions of molecular forces,' apparently leading us on from the architecture of crystals to all their mighty play in vegetable and animal life.[1]

Nothing will help us to realize this subject more vividly than the famous presidential address[2] in which Professor Tyndall, thirty years ago, set forth in full the arguments

[1] See Tyndall's 'Recollections of Thomas Carlyle' (*Fortnightly Review*, 1890).

[2] Delivered before the British Association at Belfast (Longmans and Co., 1874).

by which modern Materialism defends its position. The address created, and could not but create, a profound impression. A more powerful exposition of the whole line of argument, as based on Evolution, can hardly be conceived. It is not necessary to inquire whether Tyndall is himself a Materialist, but the line of reasoning which he has stated with so much force is that followed by most who are such. He proceeds to show that the old conception of an outside Demiourgos, a Divine workman conceived by man in his own likeness, shaping and fashioning the world, has passed away before our increased knowledge of Nature. Formerly naturalists, he says, believed that a special creative act was necessary to account for the appearance of each new group of organisms. But to the natural philosopher, who has no prejudices of 'previous education,' no contrivance like that of a human artificer is to be seen in the productions of Nature. The method of Nature is not like that of man. She has her own method — it is that of Evolution, a constant unfolding.[1] For this purpose no Demiourgos need be present ; we may 'detach the Creator from His universe.'[2]

[1] The method of Nature as an evolution from within is not more keenly realized by Tyndall than it was by Bruno centuries ago, and without the light of modern science. Bruno had to pay the penalty incurred by those who are far in advance of their age. See chapter on 'The Conflict of the Atoms and the Forms,' vol. ii.

[2] In this assertion Tyndall goes beyond Darwin, but the charge has been brought against the 'Origin of Species,' that while Darwin places a Creator at the beginning of the process of organic evolution, He is there introduced 'for ornament,' rather 'to conciliate theological prejudices,' than because He has any real work to do. He 'sits passively by and watches laws which execute themselves,' and, in short, 'He is a monarch that reigns but does not govern.' On the Darwinian hypothesis, animals and men are in reality produced simply by chance. But Darwin's theory of Evolution does not necessarily dispense with a God. Darwin has written, 'It may be metaphorically said that natural selection is daily and hourly scrutinizing throughout the world every variation, even the slightest ; rejecting that which is bad, preserving and adding up that which is good,

(We are here reminded how Epicurus 'detached' his gods from the world altogether.) The marvellous adaptations, the so-called proofs of design, are but the offspring of Nature, after her own method bringing forth all things of herself. But how can this take place? When we wish to account for the world and the life upon it, two courses, and two only, are open to us. 'Either let us open our doors freely to the conception of creative acts, or, abandoning them, let us radically change our notions of Matter.'[1] After putting the alternative thus, Professor Tyndall enthusiastically expresses his belief in the latter conception. 'Abandoning all disguise,' he says, 'the confession that I feel bound to make before you is that I prolong the vision backwards across the boundary of the experimental evidence, and *discern in that Matter*, which we in our ignorance, and notwithstanding our professed reverence for its Creator, have hitherto covered with opprobrium, *the promise and potency of every form and quality of life*.' The difference between the views of Tyndall and Darwin on the subject may be stated thus: Darwin conceives the world at the beginning as full of dead matter, and in the midst of this, one primordial living form, capable of self-development into other living forms. Tyndall prefers to conceive at the beginning a world of matter in which there is no need of a

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silently and incessantly working whenever and wherever opportunity offers at the improvement of every organic being.' We may ask, Is such a method of Creation necessarily inconsistent with the never-resting, incessant watchfulness of Mind, for whose care nothing is too small, whose power and wisdom nothing taxes too much? If Evolution causes 'one or a few primordial forms' to develop by a process of infinitesimal changes into all the rich variety of the world's organic life, could such a method ever grow up out of the reckless play of Chance?

[1] It is necessary to point out that this alternative is unfair. The fallacy seems to lie in the word 'freely,' by which Tyndall would force upon us the most vulgar and unscientific of the existing conceptions of creation. Of course his answer is that the creation of a few forms involves anthropomorphism as much as the creation of a multitude.

single living germ, for there is no dead matter ; all matter is living and able to evolve from itself living forms of every kind. Thus Tyndall rejects Darwin's hypothesis of the creation of a few living forms. If matter is animated, then such forms are not needed. But by this Tyndall only throws creation further back—back to Matter which must have been endowed with such powers of producing life. Whence, then, did Matter receive such powers ? But this question he will not answer.[1] If Matter is not created, and, as Professor Tyndall also implies, God exists, it does not seem possible to evade the conclusion that Matter is eternal, and God identical with Matter. Perhaps Tyndall would not have been unwilling to be ranked in the same class to which he has assigned Bruno—namely, as a ' Pantheist.' There is a ' higher Pantheism ' as well as a lower. The opinions expressed in the address are not inconsistent with a sincere belief in a God behind Nature. Yet a deity such as Tyndall conceives, who is, in a very important sense, wholly detached from his universe, who cannot hear the voice of prayer, and whose worshippers must neither ' seek nor expect ' aid (Professor Tyndall prefers to call it ' personal profit ') in the hour of need,[2] does assuredly remind us of the ignoble Epicurean gods ' who lie beside their nectar ' and take no heed of men.

How, then, does Tyndall take the step from the moving molecules to the existing world with its beautiful and complex living forms ? Accepting the doctrine of atoms (much as Lucretius held it) as the basis for constructing the universe, how does he explain the process ? We can only refer to the three most important or most

[1] On this subject I may refer to the Appendix to Picton's ' New Theories and the Old Faith ' (London, 1870), which contains a very remarkable note ' On the Development Theory in Relation to the Soul and Immortality.'

[2] ' It is assuredly a fact,' Tyndall continues, referring to Epicurus, ' that loftiness and serenity of thought may be promoted by conceptions which involve no idea of profit of this kind ' (p. 7).

striking points in his argument. The first question that the Materialist is called upon to answer is, How can Matter produce and account for thought and consciousness? He finds little difficulty here. Life, he says, cannot be conceived of apart from Matter. Divorced from Matter, where is life to be found? Vibrations in the brain invariably accompany thought, and actually are thought. He gives many an argument on the materialistic side to prove that there is no other self different from the brain-self, that the brain is the man. He can ask several questions very difficult to answer. Can you form a mental picture of any of the percipient powers, apart from the organism through which it is supposed to act? If consciousness is a proof of the true self being distinct from the body, what do you say of the whole body being deprived for a short time of consciousness, as in the case of fainting? If an injury to the brain makes an exemplary man a murderer, is it possible that the true self can remain as before, and that with the physical change his character is not altered? The brain cannot be viewed as a mere instrument, like an eyeglass or a staff. It is more. The union between brain and soul is so close that the conditions of the body react on the soul. Therefore, says the Materialist, we are but

'Only cunning casts in clay.'

(Professor Tyndall has with considerable force argued the opposite side as well—that molecular processes can never wholly account for consciousness.) Darwin and Herbert Spencer have sought to show how the processes of Evolution and of gradual development from lower to more perfect organisms fill up the gulf between the monad and the man, with senses, intellect, and consciousness complete.

But Tyndall has stated a second argument with great ingenuity in his endeavour to show by what scientific reasoning the Materialist attempts to account for the origination of life, a point which, as he says, has been but

lightly touched upon, if at all, by Mr. Darwin or Mr. Spencer.' He takes a very striking illustration. If we break a magnet, he says, we find in each fragment two poles. If we continue the process of breaking, we find that each part, however small, carries with it, though in a smaller degree, the polarity of the whole. When we can break no longer, we prolong the intellectual vision to the polar molecules. 'Are we not urged,' he says, 'to do something similar in the case of life?'[1] The farther back we trace the line of life, we find it approaching nearer and nearer to what we call the purely physical condition—that is to say, we reach organisms of the very simplest type, like the *protogenes* of Haeckel, in which,

[1] Tyndall's question has been thus answered: 'The reply, of course, is that any such process is not in the least "similar." In the one case, go as far back as we will, we get exactly the same thing—a magnet, only a little one, still a magnet with all its properties in full perfection. But when we try to "cross the border-line" of life, we are not seeking for anything like our own consciousness, but for some other very much lower form of life' (from an able review of 'The Atomic Theory of Lucretius' in the *Nonconformist*, September 10, 1885). So, again, Tyndall's argument from the formative power in crystals to living organisms furnishes no real analogy. How differently does a 'formative power' work in any crystal, and in the endless variety of ever higher and higher development in living things. Professor Flint says: 'In every living thing there is a working as a whole, and a working from within, and a working to an end, to which we see nothing similar in the merely inorganic world. Crystals display geometrical regularity and symmetry and variety of species or type, but, as Müller says, "there is in the crystal no relation between its configuration and the activity of the whole." The crystal has the unity which results from juxtaposition and arrangement, but in no degree the unity of reciprocal action and influence which belongs alike to the simplest and the most complex of living beings. In every plant and animal the whole is not merely composed of the parts, but acts as a whole through and by its parts, each part needing, conditioning, and influencing the whole, and the whole needing, conditioning, and influencing the parts. In the inorganic world forces are never seen acting thus, and nothing that we know of the inorganic powers of Nature can reasonably lead us to suppose that they are capable of acting thus' ('Anti-Theistic Theories,' Lecture IV.).

so far as we can discern, 'the vital action is almost wholly physical.' But after we have thus reached the very simplest known organism, Tyndall bids us cross the border-land of sense and prolong the intellectual vision from the more perfect organisms to the very lowest ones in which life can be conceived to originate. Scientific men can justify scientifically their belief in the potency of Matter, under the proper conditions to produce organisms. But they will frankly admit that they cannot point to 'any satisfactory experimental proof that life can be developed save from demonstrable antecedent life.' No one has shown that spontaneous generation takes place in the sense of Archebiosis—that is, the production of life from what we call inorganic Matter. Bastian has tried to show that spontaneous generation does take place in the sense of life being produced from dead organic Matter—what he calls Heterogenesis,'[1] but later experiments by Tyndall, Dallinger, and others have proved that his precautions were insufficient, and that no trace of life can be found in infusions of organic Matter exposed for a long period to pure atmospheric air.[2] But, says Tyndall, scientific men, as already indicated, draw the line from the highest organisms through lower ones down to the lowest, and it is the prolongation of the line by the intellect beyond the range of the senses that leads them to the conclusion which Bruno so boldly enunciated—viz., that Matter can originate life. 'Believing, as I do, in the continuity of Nature, I cannot stop abruptly where our microscopes cease to be of use. Here the vision of the mind authoritatively supplements the vision of the eye. By an intellectual necessity I cross the boundary of the experimental evidence and discern in Matter . . . the promise and potency of all terrestrial life.'

[The existence of such low types of organic life as, for

[1] See *Contemporary Review* for September, 1874.

[2] 'Fragments of Science,' vol. ii., 1879, by John Tyndall, chap. xiii.

instance, amœbæ, the mere speck of jelly which still digests, lives, and reproduces itself, shows in what low forms animal life, if it really be such, can exist. In an interesting paper on 'The Border Territory between the Animal and the Vegetable Kingdoms' Professor Huxley has shown how near in some cases vegetable comes to animal life. Microscopical research more and more confirms the generalization of Schwann, that 'a fundamental unity of structure obtains in animals and plants'; and that the structures of the bodies of both, however diverse in fabric, 'result from the metamorphoses of morphological units (termed *cells* in a more general sense than that in which the word 'cells' was at first employed), which are not only similar in animals and in plants respectively, but present a close fundamental resemblance when those of animals and those of plants are compared together.' Again, Huxley 'knows of no test by which the reaction of the leaves of the sundew and of other plants to stimuli, can be distinguished from those acts of contraction following upon stimuli which are called "reflex" in animals. . . . It must be allowed to be possible that farther research may reveal the existence of something comparable to a nervous system in plants.' Huxley illustrates his argument by quoting the history of the fungus (*Peronospora infestans*) which is the cause of the potato disease. This fungus develops spores which sometimes germinate in the ordinary way, but more commonly break up into six or eight zoospores or living organisms, which at first swim about in the moisture on the surface of the leaf, and then become quiet and germinate like a vegetable in the tissues of the plant. Thus, whether we start from the animal-side or from the plant-side, 'such an insensible series of gradations leads to the monad, that it is impossible to say at any stage of the progress—here the line between the animal and the plant must be drawn.' Thus, Huxley concludes, in certain cases the problem whether an organism is an animal or a plant may be essentially insoluble.]

With considerable force Tyndall next argues that the phenomena of crystallization show that Matter possesses a structural power. The polarity of magnetism appeals to the senses, and gives a basis for the 'conception that atoms and molecules are endowed with definite attractive and repellent poles, by the play of which definite forms of crystalline architecture are produced. *Thus molecular force becomes structural.* It required no great boldness of thought to extend its play into organic Nature, and to recognize in molecular force the agency by which both plants and animals are built up.' He had formerly used the formation of ice as a simple illustration of this process. When solid crystals of ice are produced—

'By their own constructive power, molecule builds itself on to molecule with a precision far greater than that attainable by the hands of man. . . . Imagine the bricks and stones of this town of Dundee endowed with locomotive power. Imagine them attracting and repelling each other, and arranging themselves in consequence of these attractions and repulsions to form streets and houses and Kinnaird Halls—would not that be wonderful? Hardly less wonderful is the play of force by which the molecules of water build themselves into the sheets of crystals which every winter roof your ponds and lakes. . . . Latent in every drop of water lies this marvellous structural power, which only requires the withdrawal of opposing forces to bring it into action.'[1]

In a lecture delivered more lately,[2] Tyndall has ex-

[1] 'Fragments of Science' ('Matter and Force, a Lecture to the Working Men of Dundee'), pp. 82 and 85.

[2] On the subject of 'Crystalline and Molecular Forces.' More recently, in a brilliant address delivered as President of the Chemical Section of the British Association at Bristol in 1898 on 'Stereo-Chemistry and Vitalism,' Professor Japp referred to the numerous compounds, formerly believed to be inseparable from life, which have of late years been produced by chemists. He discusses the question (with special reference to Pasteur's theory of molecular asymmetry) whether the barrier between the organic

panded the same thought. After showing some experiments to illustrate the forces of crystallization, he said, in concluding:

'Everywhere, throughout our planet, we notice this tendency of the ultimate particles of Matter to run into symmetric forms. *The very molecules appear inspired with the desire for union and growth;* and the question of questions at the present day is—and it is one which I fear will not be solved in our day, but will continue to agitate and occupy thinking minds after we have departed—How far does this wondrous display of molecular force extend? Does it give us movement of the sap of trees? I would reply with confidence, "Assuredly it does." Does it give us the beating of our own breasts, the warmth of our own bodies, the circulation of our own blood, and all that thereon depends? This is a point on which I offer no opinion to-night.'

This is a partial outline of what Martineau[1] calls 'the *new* book of Genesis.'

To this address Dr. Martineau replied in a pamphlet which introduced a memorable controversy. His pamphlet did not profess to be complete as a criticism. It was but an expression of strong disagreement with the other's conclusions. In a later article Tyndall replied to this, and endeavoured to show that we need not go outside of Matter to find the power which produces life and consciousness. The same structural force which produces the beautiful ice-crystals and, as he believes, makes the sap circulate in the trees, can in a different mode of action make the blood circulate in a human body, and call into being the consciousness which we feel ourselves to possess.

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and the inorganic, between life and the merely physical forces, is at last being broken down. Professor Japp maintains that, notwithstanding recent successes in the laboratory, the chemist has come no nearer to explaining the intervention of life. The address is marked by much philosophic power.

[1] 'Religion as affected by Modern Materialism,' by James Martineau, 1874, p. 8.

In this second paper Tyndall develops this thought far more fully and uses that graphic power of illustration which he can command so readily. His treatment of the subject shows an admirable power of exposition; indeed, it could hardly be more clear and vivid than it is.

Imagine Matter in the shape of vapour rising off the heated surface of the Caribbean Sea; trace it from the tropics flying northwards and eastwards across the Atlantic till it reaches Europe and the Alps. Here a wonderful transformation takes place. The cold air condenses the vapour to water in the form of snow-crystals, perfectly accurate in geometrical form and exquisitely beautiful; and these crystals are Matter in another form. What has occurred here? he asks. Has an 'imponderable formative soul'—by this Tyndall implies any possible outside creative Power—entered into them from without, and built each particle into its proper place? or, on the other hand, has the formative power worked from within, and was it locked up within the drops of water from the very first? Emphatically, it was the latter. Again, taking an example from the world of life, it is Matter, mere Matter, with no addition, which grows up from the acorn into the stately oak. What a wonder, then, results when, from the interaction of the acorn, the earth and the sunlight, each of which is nothing but Matter, arises the massive oak, shaking its countless twigs in the breeze. And here is verily what we call life, sprung from the interchange of mere Matter. And Tyndall, apparently somewhat presumptuously, says: 'It will be seen that I am not in the least insensible to the wonder of the tree; nay, I should not be surprised if, in the presence of this wonder, I feel more perplexed and overwhelmed than Mr. Martineau himself.' This statement seems to need some justification, and accordingly he uses most admirable illustrations to show how keenly the scientific man realizes the wonderfulness of vegetable growth. He refers first to an experiment in which the

'music of a piano is transferred from its sound-board through a thin wooden rod, across several silent rooms in succession, and poured out at a distance from the instrument.' All the vibrations and sub-vibrations of the strings—more than a hundred occurring at the same time—are crowded together and poured through this narrow bit of wood. There is no confusion, no note is lost, but all are shaken forth into the air in a distant chamber through a second sound-board against which the end of the rod presses. 'Thought,' he says, 'ends in amazement when it seeks to realize the motions of that rod as the music flows through it.' Look next at one of those exotic ferns, the branches of which are sometimes hardly thicker than a pin, and quite leafless for a foot and more. But at the end of this bare thin stem bursts out a mass of fronds almost large enough to fill the arms. All the shocks and pulses and other vital actions which produce that luxuriant foliage must flow through the insignificant stems. 'We stand here upon a higher level of the wonderful. We are conscious of a music subtler than that of the piano passing unheard through these tiny boughs,' and issuing in the splendid cluster of leaves. And realizing this so keenly, he claims to feel the wonder and beauty of this sight as strongly as his opponent, and indeed more so.[1]

Again, in answer to Martineau's somewhat haughty criticism, that, according to Tyndall's conception, 'Matter starts as a beggar without a rag and turns up as a prince, when great undertakings are wanted,' he replies, 'Not so. Mysterious and incomprehensible as it is, this wealth of power is within it from the first. It is Matter and only Matter, with no addition, which grows up from the seed into the oak, from the embryo into the perfect animal or man.' And, after referring to the organization of the human being and the marvels implied in the formation

[1] Tyndall has told us a part of the Story of the Flower or Tree which is wonderful indeed. Wordsworth can tell us of another and even more essential factor of its life.

of the human eye and ear, before the infant's birth, he concludes : ' Matter I define as that mysterious thing by which all this is accomplished.'

This whole article, as well as Tyndall's former one, illustrates, in particular, the unwillingness of many scientific men to admit a Power acting on Matter ' from without,' a God who ' orders the universe from a position outside it all.' Goethe before used the same expression in that poem where he says :

> ' Was wär' ein Gott der nur von aussen stiesse ? . . .
> Ihm ziemt's die Welt im Innern zu bewegen.
> Natur in sich, sich in Natur zu hegen.'

' What were a God who only impelled the world from without !' But then the question arises, What does *without* mean, and what does *within* mean ? That would be, indeed, hard to define. But Goethe's line has a distinct enough force, and that is : ' How mean is that conception of God which makes Him act only at intervals, by fits and starts, not constantly both here and everywhere !' The working from within, which is, according to Goethe, the nobler conception, appears to imply an ever-working, everywhere-present God. Tyndall's omnipresent Formative Power, residing in Matter—however he may have narrowed the notion—does point, if but dimly, towards the omnipresence of the Divine Energy, as religious thought loves to realize it. It need not be forgotten that the notion of a Divine Mechanist, who sometimes from far away interferes with the laws of Nature, while these at other times work in entire self-sufficience, is fully as repugnant to the greatest religious thinkers —Augustine, for example—as it can be to any scientific man.

Martineau replied to Tyndall's pamphlet, and the battle was fully fought out. The great controversy was indeed carried out on both sides to its utmost issues, and its progress was watched with an interest of more than mere intellectual curiosity or admiration of skill in

dialectic. Not a few felt as if convictions in which their lives and hopes were rooted were breaking up and vanishing away like men who perceive the solid earth, which they have known all their lives, to be shaking under them. Such onlookers felt gratitude to the strong and practised champion of philosophy who accepted the challenge so confidently flung down. If some had at first feared lest insensate Matter should soon become lord of all, they found, when they closely grappled with the phantom, that it collapsed in their grasp.[1]

The controversy between Tyndall and Martineau will be admitted to be on both sides a fairly representative one. In his final reply Martineau examined his opponent's arguments most calmly and fully, discussing them one by one with a scrupulous fairness. The veteran in the domain of mind met his antagonist on every point of attack, and cast him heavily. But while Tyndall's main position is shown to be unphilosophical, we must admit that he has stated much that is unquestionable, much that makes the world more wonderful to us than before.

[1] The atomic Materialism of the period above referred to has now been largely supplanted by the 'Monism' of Haeckel, according to which there exists but one substance, which we may call either 'Matter' or 'Mind' as we choose. In answer to Haeckel, Sir Oliver Lodge, in a most original and suggestive book ('Life and Matter,' 1906), maintains that 'life is not a form of energy, that it is not included in our present physical categories.' It appears to him 'to belong to a separate order of existence which interacts with this material frame of things' according to laws which are yet practically unknown. Life is analogous to the magnetism exerted by a magnet on other pieces of steel, where the required energy is not generated, but extraneously supplied, as if called out of some infinite reservoir. An acorn has in itself the potentiality of a forest of oak-trees—indeed, of oak-trees without end. It is not as if something were here passed on according to a law of 'Conservation.' The energy comes to us from without, and is only transmitted by the controlling principle. Life supplements or accompanies, but does not contradict mechanical laws. Life can generate no trace of energy: it only guides its transmutations. Thus there need be no real antinomy between 'mechanism and morals.'

It would be easy to criticise some of his more petulant statements, but it is much more important that we should follow him to his own ground, and, coming at once to the central question on which the whole controversy turns, to state what powers he attributes to Matter, and to show what reasons he can give, just from his own point of view, for assigning these. Here he has much to teach us, much that, but for him, we might have missed entirely.

Martineau's criticism on all the points before quoted is admirable. He remarks, in the first place, that Tyndall, while treating of and explaining the methods of Nature, entirely drops out of thought the Power which works along these methods. This criticism seems to us thoroughly just. He says of the series of illustrations which lead up to Tyndall's aphorism :

' " Matter I define as that mysterious thing by which all this has been accomplished "—*i.e.*, the whole series of phenomena from the evaporation of water to self-conscious life of man. Need I say that such a proposition is no definition, and dispenses with all proof, being simply an oracle, tautologically declaring the very position in dispute—that matter carries in it " the promise and potency of terrestrial life." The whole of the picturesque group of descriptive illustrations which lead up to this innocent dictum are only an expansion of the same *petitio principii ;* they simply say, over and over again, the force immanent in matter *is* matter—they are identical. . . . This is not a process of reasoning, but an act of will. Nothing can be less relevant than to show (and nothing else is attempted) that the forces of heat, of attraction, of life, of consciousness, are attached to material media and organisms, which they move and weave and animate. This is questioned by no one.'

And again : ' The very story of saline crystals and ice-stars and fern-fronds and human birth, which Professor Tyndall tells in order to exclude it [*i.e.*, causal Will], is to me a continuous report of its agency and laws. He

asks : " What else is there here than matter ?" I answer, The *movements* of matter with their disposing and " formative power," the attracting and repelling energies which, *dealing with* molecules and cells, *are not* molecules and cells.'

Thus we come to see that science deals only with sequences and succession of phenomena, not with dynamic ideas, not with causality. So, imagining the case of a perfect observer, able to follow all the changes of external bodies, ' though the whole objective world has been laid bare before him, and he has read and registered its order through and through, he has not yet, it will be observed, alighted on a single *dynamic* idea. . . . The whole vocabulary of causality may absent itself from such an observer. . . . He might, as Comte and Mill and Bain truly contend, command the whole body of science, without ever asking for the origin (other than the phenomenal predecessor) of any change.' So the scientific text-books wrongly speak of ' Energies '; they can only explain the succession of movements, ' accomplished, prevented, modified.' Science cannot tell us *what* it is which does the work, *what* it is which produces these movements of Matter.

Martineau next points out—Observation shows us that all Forces are One. If you watch any one force, it may be seen passing into another. ' Now it is mechanical energy, in a minute it will be heat ; if a tourmaline is near, it will turn up as electricity ; and so on, for no part of the cycle is closed against it. You look, in short, upon a row of masks, behind which the " unknown power," slipping from one to another with magic agility, seems to multiply itself, but is found on closer scrutiny never to quit its unity.'

So the plurality of forces disappears. The forces are seen to be mere disguises of some unity, and we next inquire, How is that One Power related to its many masks ? Is it indifferently related to all, but like none of them ? or are the phases not on equal footing, but

consecutive ? and, if so, is the lowest or the highest to be held the oldest ? Three answers may be given. At present I can only refer to Martineau's most close discussion of each.[1]

Next, we cannot help inquiring, What is this Power ? But Science cannot tell us, for it cannot discern Power ! To find out its nature, we must look within ourselves. What makes us at the sight of phenomena ask for a power? It is the active side of our own nature. We are conscious that we ourselves exercise power. This is the one thing that we immediately know. We call this exercise of power *living Will*. Our whole idea of *Power* is identical with that of *Will*, or deduced from it. So by a mental postulate we recognize causality in Nature. The law of causality in its intuitive form is this—phenomena are the expression of living energy. Till this intuition is disproved, the One Power stands as the Universal Will. (If you take away this from dynamic conceptions, you are again reduced to co-existences and successions.) Nor is this notion so repugnant to all scientific men as it is to some at present. Herschel says that ' it is our own immediate consciousness of *effort* when we exert force to put matter into motion, or to oppose and neutralize force, which gives us this internal conviction of *power* and *causation*, so far as it refers to the material world, and compels us to believe that whenever we see material objects put in motion . . . or deflected if already in motion, it is in consequence of such an *effort somehow* exerted, though not accompanied with our consciousness,'[2] and others speak to the same effect.

In a later article,[3] not referred to by Martineau, Herschel has worked out the same thought more fully :

' In that peculiar *mental sensation*, clear to the appre-

[1] See Martineau's collected ' Essays, Reviews, and Addresses,' vol. iv., 1891, p. 237.

[2] ' Treatise on Astronomy,' chap. vii., § 370, 1833.

[3] ' On the Origin of Force ' in ' Popular Lectures on Scientific Subjects,' p. 461, by Sir John Herschel, 1873.

hension of everyone who has ever performed a voluntary act, which is present at the instant when the determination to do a thing is carried out into the act of doing it (a sensation which, in default of a term more specifically appropriated to it, we may call that of *effort*), we have a consciousness of immediate and personal causation which cannot be disputed or ignored. And when we see the same kind of act performed by another, we never hesitate in assuming for him that consciousness which we recognize in ourselves.'

The next step in the way of generalization, Herschel continues, is 'a flight rather than a step,' yet it is 'one that forces itself on our thoughts with ever-increasing cogency.' Whatever event takes place in the material world, we either find to be ultimately resolvable into some change occurring in material substance, or we endeavour to trace it to this. 'In every such change we recognize the action of *Force*. And in the only case in which we are admitted into any personal knowledge of the origin of force, we find it connected (possibly by intermediate links untraceable by our faculties, but yet indisputably *connected*) with volition, and by inevitable consequence with *motive*, with *intellect*, and with all those attributes of mind in which personality consists.'

We have elsewhere quoted[1] from the same article another most suggestive passage as to the method in which we may suppose Will to act on Matter.

Herschel's paper greatly supplements Martineau's treatment of this point, which, we cannot help thinking, is somewhat hasty.[2] Yet the thought is clear—namely, it is a mental postulate to refer Power to Will. Any causal

[1] See Chapter IX. In the same essay Herschel discusses the question, How does the scientific principle known as the 'Conservation of Energy' bear on this question of Will and its power to originate Force? Does that principle 'stand opposed to any, even the smallest amount of arbitrary change in the total of "force" existing in the universe?' See pp. 468-473.

[2] He states the same position more fully in his 'Essays,' vol. ii., pp. 185-189.

power other than Will, is, he says, 'absolutely out of the sphere of thought.' To this point I shall return. But here we cannot help quoting one other passage, referring to the relation between God and the world.

Martineau suggests that inorganic matter and lower animal life represent, as it were, the habits of the universe, habits carried on somewhat in the way that men do certain acts—mechanically—while the Indwelling Mind concentrates its aim on the natures that resemble itself. It is in planning new methods of work, he says, that the human mind exercises its highest functions. When it has established a definite method of working, the strain is relaxed: a habit is formed that can almost execute itself, so that the mind can press on to new schemes, while still at the same time the same mind carries on the old usages.

'Does anything forbid us to conceive similarly of the kosmical development; that it started from the freedom of indefinite possibilities and the ubiquity of universal consciousness; that as intellectual exclusions narrowed the field, and traced the definite lines of admitted movement, the tension of purpose, less needed on these, left them as the habits of the universe, and operated rather for higher and ever higher ends not yet provided for; that the more mechanical, therefore, a natural law may be, the further is it from its source; and that the inorganic and unconscious portion of the world, instead of being the potentiality of the organic and conscious, is rather its residual precipitate, formed as the Indwelling Mind of all concentrates an intenser aim on the upper margin of the ordered whole, and especially on the inner life of natures that can resemble Him.'

The track we are following has brought us here to a point from which a noble prospect bursts into view, indeed, we may say, a new range of thought that surprises us like a glimpse 'from magic casement' into some untrodden land.

Tyndall's theory of 'organic matter,' which with its

supposed results Martineau has throughout been combating, points plainly to but one ultimate result, nor does Tyndall shrink from stating this. 'From this point of view,' he says, 'all three worlds (the inorganic, the vegetable, and the animal) constitute a unity in which I picture life as immanent everywhere'; and this life, he says, may possibly be but 'a subordinate part and function of a *higher life*.' This is, indeed, a sublime conception, says Martineau. We have no scale of life higher than human in the world. Scale of height above this is only in degrees of the intellectual and the moral. So if that 'higher life' exist at all, we must think of it as transcendent Mind and Will. Yet to his so-called 'higher life' Tyndall dares not give the predicate 'Mind,' or apply the pronoun of personality. On what scale, then, asks Martineau, is it 'higher'? If not on the intellectual and moral, then there is in man what rises above it, 'for the power of attaining truth and goodness is ideally supreme. If Tyndall can reveal to us something higher than Mind and free Causality, let us by all means accept and assign it to God. But to profess this, one would have, I think, to be something more than human. Else how could one grasp its conception? how look higher up than the level of Reason? If that "higher life" speak to us in idea at all, it can only be as Perfect Reason and Righteous Will. *Those who find this type of conception not good enough, do they succeed in struggling upwards to a better?* . . . Rather, I should fear, they *droop and sink into the alternative faith of blind force.*'

Tyndall has stated with splendid force the arguments for believing that Life is immanent in Matter, and no Directive Power can act on the world of Matter from without. But there are influences at work in all organic processes which he has excluded from his enquiry.

One solution of the difficulty is offered in the book entitled, 'The Mystery of Matter,' by Mr. J. A. Picton,[1]

[1] Second edition, 1878. In his latest work ('Spinoza,' 1907) Picton completely accepts the Spinozan Pantheism.

a writer who has met scientific discovery with the frankest welcome, while he holds its philosophical and religious bearings with a very different grasp from Professor Tyndall's. Picton endeavours to show that the ordinary conception of atoms, as indivisible particles which occupy space exclusively, is untenable. If this opinion be accepted, how can 'two substances like oxygen and hydrogen produce a third so utterly unlike both as water?' Why not rather think of the atoms as others do of the interspaces between them, and regard them as the mere 'phenomena of force'? Picton sees 'strong reasons for believing' that Matter is but accumulated 'centres of force.' 'We may suppose these centres capable of interpenetrating one another, and of thus producing an entirely new mode of force, or, in common language, a new substance.' The Atomic theory, pure and simple, 'first denies and then is compelled to assert the dissociation of matter and force.' The ordinary conception of dead atoms, of an 'unliving substance' called Matter, Picton utterly rejects. 'The notion of a dead substance, foreign to and incommensurable with spiritual being,' is a mere 'spectre' which is 'entirely the creation of false inference.' We are certain of only one thing—namely, the existence of life, our own or another mode of life. 'We know that life is, but we do not know that anything else is.' Our notion of Matter as a dead substance apparently comes from our experience of the 'physical laws which bound the efforts of our will.' We naturally conceive of force, whether put forth by ourselves or in Nature, as effort. We observe that these laws act in sequences, and since these sequences occur with 'certainty and unfeeling regularity,' this appears to us ground for excluding from them 'the immediate action of will or conscious purpose.' We abstract these, and there remains the 'really irrational conception of unliving effort.' But mere force will never prove a solution of the mystery of matter. 'Both forces and forms, far from lending themselves to "gross materialism," rather fascinate us with their shadowed

hints of a mystery behind them both, far mightier than our will, *and I will dare to add, more keenly living than our life.*' This is why landscape has the power to touch us so deeply.

Picton is willing to concede to Professor Huxley that 'force is as much a function of matter as motion is.' But at the same time, as he remarks, 'the whole significance of the concession depends upon the meaning that we attach to the word "matter."' And then he propounds with elaborate illustration the theory that matter 'is in its ultimate essence spiritual.' Matter is the 'elementary phenomenal definition,' such as our consciousness apprehends, 'of a universal spiritual Power.'

Thus he claims to have 'gone right through materialism, and come out at the other side, where it merges into pure spiritualism.'

However mistaken his final conclusions may be, Picton's theory of Matter is at least a grand poetic dream. Not a few passages of his book intoxicate the reader. We cannot here analyse the argument by which he defends his view of Matter. After all, however, the question of Mind and Matter cannot be quite so simply settled as Picton appears to believe. His dilemma is not close enough. The world might be conceived, instead of being the 'elementary and phenomenal,' to be the *partial* and imperfect 'manifestation' of the One Power—a side-stream returning into, but ever flowing apart from, its source, and which it is possible for us to know only while it is separated from that source, somewhat like men dwelling where they can see only a side-channel, but never the great river from which its waters come. If this were possible, Matter and Mind need not be viewed as two utterly discordant substances. Poetically beautiful, profoundly spiritual, in many respects, indeed, truly religious as Picton's form of Pantheism is, and it can be such only because there is much of truth mixed with it—yet in reference to this subject—in trying to realize the relation of the world to God—we shall find something far

more helpful, far closer to fact, in Martineau's suggestion that inorganic matter and lower animal life may represent, as it were, 'the habits of the universe' carried on 'mechanically.' Thus we complain that Nature is unsympathetic and heedless, and we feel that an infinitely deeper Divine communion is possible through the voice speaking within than through the world outside, because 'the Indwelling Mind of all concentrates an intenser aim on the upper margin of the ordered whole, and especially on the inner life of natures that can resemble Him.'

We have now surveyed the controversy of Matter over all the disputed ground, and what is the result? Is it that the whole world has become disenchanted and dead? or do not the consequences far rather tend the other way, and has not the earth our dwelling-place, with all its mysteries of life and growth, become more wonderful than we before thought it? nay, indeed, is it not more sacred also? Thus a great biologist[1] could speak of 'the real religion of Nature—the beautiful but awful omnipresence which every flower and every insect reveals.' Surely the working of the One Power on Matter is something yet more strange and beautiful than we were wont to think. Matter in every shape, from the dead mass, throbbing with countless unseen movements which mind can barely imagine, to the little company of snowdrops hanging their heads where a month before was bare black ground, is still more mysterious than before.

[1] W. Kitchen Parker ('Biography,' 1893, p. 70).

CHAPTER IX

EPICUREAN PSYCHOLOGY

One sometimes wonders how any man who lives and feels his own life keenly can ever believe that a number of atoms, even granting countless ages and the usual formula, could of themselves produce human beings. An acute living thinker says emphatically that nobody ever actually and really believed such a thing. If he once tried to realize it, all he means by such a profession is that no one can get any further than this in the way of explaining the problem. Probably this is true, yet it seems as if Lucretius did come very near to so believing; he schooled his mind so deliberately into this habitual attitude that he felt quite convinced logically that atoms in motion were amply potent to produce the world and man. It is quite possible that some men now living are really still nearer this position than Lucretius, only they are not so sternly uncompromising in expressing their convictions as he was. One cannot help being curious to know by what reasoning Lucretius actually reconciled himself to such a belief, and how he accounted for the origin of Consciousness from such 'blind beginnings.' In considering his attitude, we may find it more than once inconsistent; but we must be careful to let him paint himself exactly as he is. Singularly enough, and if so in the sheerest self-contradiction, we may find even him compelled at last to admit the existence of something more than Matter.

After having thoroughly proved to his own satisfaction

the existence of the atoms, their indestructibility and eternal motion, Lucretius next endeavours with much emphasis and ardour to demonstrate that these atoms are utterly dead.[1] They are not living like weak flesh and blood, for living things are necessarily perishable, but not so the atoms. Moreover, life implies internal motions of pleasure and pain, but the atoms are perfectly hard and solid, as has been proved ; there is no room in them for such movements. Besides, if the atoms possess life, how can many living atoms form a single body with one vital sense ?

How, then, does Lucretius account for these little particles producing living beings ? He commences to answer this by explaining that it is a mere prejudice to suppose that life can come only from life. We think that Matter cannot produce life, and that is natural, because we think of Matter as we see it every day in the shape of masses of stone and logs of wood, and such substances could never produce life, however much particles of them were to be jumbled together. But the fine minute atoms can mix together in a very different way. Matter in this shape is quite competent to do all that he claims. Then, of course, he repeats his formula of evolution—' It matters much with what others and in what position the same atoms are held together,' and so on. To produce living things as distinguished from dead objects, the atoms only require to be specially minute, of special shapes, and to have fallen into special arrangements and mutual motions.[2] Pleasure is but an

[1] ii. 865-1022.

[2] ' Nimirum lapides et ligna et terra quod una
Mixta tamen nequeunt vitalem reddere sensum.
Illud in his igitur rebus meminisse decebit,
Non ex omnibus omnino, quæcumque creant res,
Sensile et extemplo me gigni dicere sensus,
Sed magni referre ea primum quantula constent.
Sensile quæ faciunt, et qua sint prædita forma,
Motibus, ordinibus, posituris denique quæ sint.
Quarum nil rerum in lignis glæbisque videmus.'
ii. 889-897.

orderly motion of the atoms, pain is felt when they move in disorder. This stipulated order in their arrangements and motions is indeed important. Lucretius insists upon it: you cannot have life without it, but it implies no arranging Intellect. The existence of life as distinct from death means merely that a multitude of little particles have changed their position. So we see the earth after rains produce numbers of creeping things, just because its particles have fallen out of their old combinations, resulting in dead matter, into the new ones necessary to produce life.[1] In the same way a strong enough cause can in a moment stop these motions of the atoms, and then death takes place. The difficulty of the origin of sensation he hardly realizes. Body and soul cannot, he says, feel apart from each other, but their mutual motions 'kindle' sensation which 'bursts up like a flame'[2] between them. Again, he asks, feeling plainly that he has got a very strong instance in confirmation of his theory, What of a man in a swoon? if activity of the senses and consciousness is a proof that a principle of life exists apart from the body, how is it, when a man receives a heavy blow, that for a time he loses consciousness and then returns to life? Where was the true self during that interval? It made no sign. Did it die and come to life again when the man recovered? And he gives what he feels to be a very plausible explanation. Life is but a certain 'mode of motion' of the atoms; when this is greatly disordered by a blow, life almost

[1] 'Et tamen hæc, cum sunt quasi putrefacta per imbres,
Vermiculos pariunt, quia corpora materiai,
Antiquis ex ordinibus permota, nova re
Conciliantur ita ut debent animalia gigni.'
ii. 899-901.

[2] 'Nec congressa [sc. materies] modo vitalis convenienti
Contulit inter se motus, quibus omnituentes
Accensi sensus animante in quaque cientur.'
ii. 941-943.

This comparison of sensation to a fire-flash between flesh and soul is found also at iii. 335, 336, and iv. 927, 928.

passes away; but the remnant of the proper vital movements prevails over the disorder and recalls the atoms to their proper motion, and so the return to consciousness takes place. (If life departs because this motion is disturbed, and returns when it is restored, then life is nothing more than a form of material energy.) In this way, as he says, Nature produces living bodies from Matter in the shape of food, much in the same way as she turns wood into fire.[1] 'Nature' (by this meaning the habits of the atoms) is little more here than a figure of speech, though, as we have seen, it is easy to find a modern parallel to the statement that living bodies are only the product of 'Matter and Nature,'—that is, of 'Matter and the habits of Matter.' Lucretius has strong reasons for labouring so eagerly as he does to prove Matter to be 'utterly dead.'[2] He could not avoid feeling that one of his main doctrines was specially open to attack on this head, and though his present argument is entirely powerless to answer the objection, it is no doubt aimed towards it. But this will become more clear afterwards. Plainly, Lucretius's theory of Matter is such that henceforth no more divine agents were needed to create living things, or to act in any way on Nature *from without*. 'Nature,' he says, 'is seen to do everything alone and entirely of her own accord'—

> 'Quæ bene cognita si teneas, *natura videtur*,
> Libera continuo, dominis privata superbis,
> *Ipsa sua per se sponte omnia dis agere expers*.'

Pursuing his aim, the deliverance of mankind from superstition and fear, Lucretius proceeds in his third

[1] 'Ergo omnes natura cibos in corpora viva
Vertit et hinc sensus animantum procreat omnes,
Non alia longe ratione atque arida ligna
Explicat in flammas et in ignis omnia versat.'
ii. 879-882.

[2] 'Seminibus carentibus undique sensu.'
ii. 990.
'Haut igitur debent esse ullo prædita sensu [sc. primordia].'
ii. 972.

book to explain the nature of the soul, and to show that it perishes along with the body. Thus the fear of torments after death is to be done away. The soul is not a mere 'harmony' between the different parts of the body; it is material, for without touch how can it direct and act on the body ?[1] It is closely united to the body; just as it is hard to separate the odour from a lump of frankincense without destroying it, so it is impossible to part soul and body without destroying both. The soul can play its part in the human organism only because the union of the two is so close. It is an actual wedlock. 'By the binding tie of marriage between body and soul are we formed each into a single being.'[2] The bodily organs of sense possess sensation themselves. For example, the eyes themselves see; they are not mere doors through which the mind looks out and perceives.[3] The soul does not live 'in a den of its own,'[4] but is spread all over the body. It 'grows along with the body, together with its members, within the very blood.'[5] The atoms forming it are vastly different from those composing flesh and bone. They are 'exceedingly small,

[1] iii. 94-135.

[2] 'Nos qui comptu conjugioque
Corporis atque animæ consistimus uniter apti.'
iii. 845, 846.

'Mortale quod est immortali atque perenni
Junctum in concilio sævas tolerare procellas.'
iii. 804, 805.

[3] iii. 350-369.

[4] 'Velut in cavea per se vivere solam.'
iii. 684.

Lucretius is here refuting the notion that the soul enters into the body after the latter is fully formed, at the instant of birth, instead of growing along with it from the first. In the former case, he says, the soul must of necessity dwell by itself in a distinct part of the body.

[5] 'Uti cum corpore et una
Cum membris videatur in ipso sanguine cresse.'
iii. 682, 683.

Compare iii. 445-458.

smooth and round';[1] how much Epicurus thinks to be implied in such special fineness of atomic composition, we have seen already.[2] The soul-atoms are also fewer and at far greater intervals than those of the body.[3] The bulk of the soul is exceedingly small compared with that of the body. As Gassendi[4] expresses it, following Lucretius, 'If you can conceive the whole of the soul to be gathered into one mass it would occupy a mere point almost, or the very tiniest space.'[5]

Like Plato and Aristotle, Epicurus held the soul to

[1] iii. 203-205. According to Philoponus, 'De An.,' c. 6, Democritus considered the round atoms to be the smallest. We may regard it as certain that Epicurus did the same.

[2] See p. 147.

[3] 'Nam cum multo sunt animæ elementa minora
Quam quibus e corpus nobis et viscera constant,
Tum numero quoque concedunt et rara per artus
Dissita sunt dumtaxat.'
iii. 374-377. Compare ll. 276-278.

[4] 'Adeo proinde, ut punctum sit prope loculusve exilissimus in quem recipi possit anima, si totum fingas conglomerari' ('Epicuri Philosophia,' Leyden, 1675, vol. i., p. 404). Lucretius himself says:

'Hæc quoque res etiam naturam dedicat eius,
Quam tenui constet textura quamque loco se
Contineat parvo, si possit conglomerari.'
iii. 208-210.

the proof of which is that the body appears in no whit either smaller or lighter after death than it was before.

[5] The exceeding fineness in texture of the mind as compared with the body is implied in Lucretius's doctrine of mental images. These, though beyond expression thin and fine, are perceived directly by the mind. Moreover, a single such image is sufficient to rouse mental consciousness, though of the far grosser images which enter the eye, a constant succession is needed to produce sight. Any one such mental image 'readily moves the mind by a single stroke, for the mind itself is fine and wondrously nimble.'

'Facile uno commovet ictu
Quælibet una animum nobis subtilis imago;
Tenuis enim mens est et mire mobilis ipsa.'
iv. 746-748.

consist of a higher or intelligent principle joined to a lower, animal or vital, principle. These component parts are the *animus*, the mind, spirit, or understanding, and the *anima*, the soul and life. The two are closely, vitally united, and form 'one nature.' The former 'is the superior, and reigns supreme in the whole body. It has a fixed seat in the mid-region of the breast: here throb alarm and apprehension, round that spot joy soothes us; here, therefore, is the understanding or mind.'[1] The varying throb of the heart in the varying emotions localizes for us the mind's dwelling-place.

The *anima*, the soul and life (in which Lucretius often includes the *animus*), is composed of four different substances—wind, heat, calm air, and a fourth substance,[2] which is concentrated in the *animus*. This substance is 'entirely without name'—quite beyond definition. It is the finest and most nimble of existing things, and nothing else is formed of such small and smooth atoms, for such only can accompany the marvellous swiftness of the mind in thinking and imagining.[3] This is the inner-

[1] 'Nunc animum atque animam dico coniuncta teneri
Inter se atque unam naturam conficere ex se,
Sed caput esse quasi et dominari in corpore toto
Consilium, quod nos animum mentemque vocamus.
Idque situm media regione in pectoris hæret.'
iii. 136-140.

[2] iii. 231-257.

[3] 'Est omnino nominis expers;
Qua neque mobilius quicquam neque tenuius exstat,
Nec magis e parvis et levibus est elementis.'
iii. 242-244.

Here, as so often, Epicurus treads in the footsteps of Democritus, as we see from a passage in Aristotle's 'De Anima,' i. 405: *ψύχην μὲν γὰρ εἶναι ταὐτὸ καὶ νοῦν, τοῦτο δ' εἶναι τῶν πρώτων καὶ ἀδιαιρέτων σωμάτων* (the atoms), *κινητικὸν δὲ διὰ μικρομέρειαν καὶ τὸ σχῆμα· τῶν δὲ σχημάτων εὐκινητότατον τὸ σφαιροειδὲς λέγει· τοιοῦτον* (that is to say, 'most mobile') *δ' εἶναι τὸν τε νοῦν καὶ τὸ πῦρ.* We may observe that as to the composition of the soul, Epicurus diverges very widely from his master. Democritus considered the soul to be formed *entirely* of atoms the same in shape as those of fire—that is to say, round, but arranged in a different order, and prob-

most and most vital portion of the soul. Just in the same way as our mind and soul, though forming part of the body, remain hidden because the atoms forming them are so fine, so the fourth principle is, as it were, concealed and hidden away within the soul. 'For this element lies hidden in the very inmost recesses of our frame, and nothing in our body is further beneath all ken than this;' and, more than this, it is the very soul of the whole soul.'[1]

'Atque anima est animæ proporro totius ipsa.'

It alone is the origin of will and thought. Sensation and motion begin from it.[2] 'It first transmits sense-giving motions over the frame; for it is the first to be stirred,

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ably smaller also than the fire-atoms. Democritus calls the soul not, as Zeller renders it, fire, but πῦρ τι, 'a kind of fire' ('De Anima,' i. 403). Democritus held that there is one soul-atom between every two atoms of the body. Lucretius bids us beware of this error which would make the soul-atoms as numerous as those of the body; the former are, in fact, much fewer than the latter. Many atoms of the body may be touched by some small object like a fly or a grain of dust without any part of the soul being moved, and therefore without sensation (iii. 370-395).

[1] 'Nam penitus prorsum latet hæc natura subestque,
Nec magis hac infra quicquam est in corpore nostro
Atque anima est animæ proporro totius ipsa.'
iii. 273-275.

[2] This point is important. On it the evidence is clear. Ætius ('De Plac.,' iv. 3), says: Ἐπίκουρος κρᾶμα [sc. εἶναι τὴν ψύχην] ἐκ τεσσάρων, ἐκ ποιοῦ πυρώδους, ἐκ ποιοῦ ἀερώδους, ἐκ ποιοῦ πνευματικοῦ, ἐκ τετάρτου τινὸς ἀκατονομάστου, ὃ ἦν αὐτῷ αἰσθητικὸν ('quæ ei erat vis sentiendi,' as Dübner translates). The same is found in Stobæus (i., p. 798), who continues, τὸ δ' ἀκατονόμαστον τὴν ἐν ἡμῖν ἐμποιεῖν αἴσθησιν· ἐν οὐδενὶ γὰρ τῶν ὀνομαζομένων στοιχείων εἶναι αἴσθησιν. So also Lucretius:

'Sensiferos motus quæ didit prima per artus.
Prima cietur enim, parvis perfecta figuris.'
iii. 245, 246.

'Sic calor atque ær et venti cæca potestas
Mixta creant unam naturam et mobilis illa
Vis, initum motus ab se quæ dividit ollis,
Sensifer unde oritur primum per viscera motus.'
iii. 269-272.

from the smallness of the atoms which compose it ; next the heat and the unseen element of wind receive the motion, then the air, and then everything is set in movement,' and all over the body, in flesh, blood, and bone, we feel either pleasure or pain.[1] And in a striking passage (ii. 261-293) Lucretius shows how motion begins from the heart, the seat of will, and is thence transmitted over the body : ' his own will makes for each man a beginning, and from this beginning the motions stream through the limbs.' Then he points out carefully how the body cannot move all at once, but ' the whole stock of matter over the whole body ' must be sought out and stirred up *by degrees* till at length the frame obeys the bidding of the will. Over and over again he thus asserts the idea of a gradation of moving force, starting from the infinitely slight motion of the tiniest soul-atoms, and growing gradually stronger and stronger till the body moves. This gradual increase of motion furnishes Lucretius with an argument for the existence of Free-will. When a man is pushed by some outer power, the body moves all at once, and continues moving till something within can stop it.[2] When we move of ourselves, the motion is at first very slight, starting from the heart, and increases by degrees till the whole matter of the body is put in motion and we go whither we will. Thus—and most subtly—does his system link the mightiest efforts of the moving body with

[1] The power of the soul, which is of so subtle a nature, thus to move the weight of our body, depends entirely on the close union of the two from the very first :

> ' Nonne vides etiam quam magno pondere nobis
> Sustineat corpus tenuissima vis animai
> Propterea quia tam coniuncta atque uniter apta est.'
> v. 556-558.

The whole paragraph (534-563) illustrates the same notion. Again, at iv. 877-906, the *animus* is able to move the *anima* with ease, because the two are in close union,

> ' Et facilest factu quoniam coniuncta tenetur.'

[2] Coleridge uses an exactly similar illustration.

the Declination of the atoms, a motion so inexpressibly slight.

This view of Epicurean psychology enables us to see how subtle a part 'Declination' plays in Lucretius's system. The principle of atomic Declination was the most characteristic and, in several ways, one of the most important of Epicurean doctrines. One of its aims is to explain our Free-will. But for the fact that the atoms have the power at will to swerve slightly from their places 'at quite uncertain times and uncertain spots,' we should be the slaves of necessity. But for this power in the atoms, of which our souls are formed, we should not be able 'to move, nor yet to alter the direction of our motions, not at a fixed time or fixed place, but just as our mind has prompted.' How, then, does Lucretius conceive Will to set the human body in motion? When we reflect on this, we realize how subtly the doctrine of Declination is adapted to Epicurean psychology.[1] The human Will acts directly on the finer atoms composing the fourth principle. 'Nothing else is formed of such small and smooth atoms' as this: *therefore nothing else can be so easily set in motion, or by so small a force.* The human Will (*i.e.*, the soul-atoms which possess volition) needs to exert but the smallest amount of force *at the outset* in order to produce the mightiest physical efforts of the body. Sir John Herschel's paper on 'The Origin of Force,' one of the weightiest words of English speculative thought, contains a passage which will help us to realize the principle here implied by Lucretius:

'The control we possess over the external world we are sure must arise from a capacity, somehow inherent in the intellectual part of our nature, to originate or call into action this one and only agent which matter obeys in its changes of form and situation. . . . The actual *force* necessary to be *originated* to give rise to the utmost imaginable exertion of animal force in any case, may be no greater than is required to move a single material

[1] See p. 205 *ff.*

molecule from its place through a space inconceivably minute—no more, in comparison with the dynamical force *disengaged*, directly or indirectly, by the act, than the pull of a hair-trigger in comparison with the force of the mine which it explodes. But without the power to make *some* material disposition, to originate *some* movement, or to change, at least temporarily, the amount of dynamical force appropriate to some one or more material molecules, the mechanical results of human or animal volition are inconceivable.[1] It matters not that we are ignorant of the mode in which this is performed. It suffices to bring the origination of dynamical power, to however small an extent, within the domain of acknowledged personality.'

Surely Lucretius (or his master Epicurus) must have foreseen that Will must, somehow or other, exert *force* on Matter to make it move, also that its method of action might lie in giving a very slight initial impulse, from which by gradual increase the very greatest actual force might finally be developed. Lucretius's conception of Declination as a movement so exceedingly slight, the tiny soul-atom swerving from the straight line 'not more than the least possible' degree at the impulse of its own Free-will—does not this come pretty near to Herschel's 'no greater force than is required to remove a single material molecule from its place through a space inconceivably minute.' The principle involved is the same. It is not difficult to conceive Will acting on Matter in some such manner as this. Much in the same way, it is the arm of the engineer, deep down in the centre of the ship, moving a lever-handle a few inches, which actually sets in motion the huge Atlantic steamer weighing thousands of tons. Here, too, the beginning of motion was exceedingly small—the movement of the engineer's arm, allowing the steam to

[1] This sentence of Herschel's at once reminds us of the following words of Lucretius: 'If the first-beginnings do not swerve, and by so doing *produce some commencement of motion* so as to break through the decrees of Fate, that cause may not from everlasting follow cause; if it be not so, how do all living creatures upon the earth possess this power? (Free-will)' (Lucretius, ii. 251 *ff.*).

pass into the cylinder—but through a series of mechanical arrangements it results in an enormous force, which can hurl the sea-monster against wind and tide at a speed of four hundred miles a day. The problem of Will and its relation to Force will meet us again.[1]

The manner in which Epicurus supposed the four elements of the soul to combine together is a question of some difficulty. It appears on the surface as if Lucretius restricted the fourth nameless substance to the *animus*. Even Munro[2] and Zeller took this view, which Giussani was the first to correct. Had Lucretius held this, it would be very unlike him to leave us to *assume* the identity of the fourth substance with the *animus*. Indeed, this view contradicts Lurcetius's express statements. For example, he says that both *animus* and *anima* form a single nature,[3] that the four elements of the soul cannot be locally separated from each other. 'The atoms by their mutual motion are interlaced in such

[1] In his fourth book Lucretius uses our very illustration from machinery:

> 'Nec tamen illud in his rebus mirabile constat,
> Tantula quod tantum corpus corpuscula possunt
> Contorquere et onus totum convertere nostrum.
>
> * * * * * *
>
> Multaque per trocleas et tympana *pondere magno*
> Commovet atque *levi* sustollit machina nisu.'

[2] See his note on iii. 242. Yet his translation with its instinctive fidelity corrects this view. Readers of this passage have been misled partly because Lucretius uses the same emphatic phrase of each—namely,

> 'Dominatur corpore toto,'

'it reigns supreme in the whole of the body' (of the fourth substance at 281, of the *animus* at 138). The same phrase recurs in the Œnoanda inscription (No. 32). The writer is insisting on the supreme importance of the soul in preserving life and keeping it in, even when the body is maimed or wasted by disease till it is dry, fleshless, bloodless: 'So mightily does our soul-nature reign supreme over the body' (*τοσοῦτον αὐτοῦ τὸ ψυχικὸν ἡμῶν βασιλεύει μέρος*).

[3] iii. 270.

a way that no one element can be separated by itself, nor can its function become one locally divided from the rest, but they are, as it were, the several powers of one body.'[1] 'Just *in the same way as the powers of the mind and the functions of the soul are mingled together in our limbs and in our whole body*, and are unseen because formed of small and few particles, so this nameless force formed of tiny particles is unseen, and is, as it were, the soul of the whole soul, and reigns supreme over the whole body.'[2]

The last passages make it clear that the element of the soul which causes sensation is spread over the whole body, so that sensation occurs everywhere in the body without a telegram, as it were, being sent unconsciously to the *animus* from the part affected, and the *animus* at once transmitting consciousness back to the place. (The ancients, of course, had no knowledge of the functions of the nerves or brain.) We must not say it is only the soul spread through the body which feels. This is to fight with facts, Lucretius tells us: '*The body itself feels.*'[3] We say, of course, that after death the body has no feeling. And rightly so, because feeling is but an accident of the body,[4] but is proper to the soul which has departed. Sensation commonly takes place on the surface of the body.[5] 'No pain can lightly pierce to the

[1] 'Nunc ea quo pacto inter sese mixta—
. . . Ut potero, summatim attingere tangam.
Inter enim cursant primordia principiorum
Motibus inter se, nil ut secernier unum
Possit nec spatio fieri divisa potestas,
Sed quasi multæ vis unius corporis extant.'
iii. 258-265.

[2] 'Quod genus *in nostris membris et corpore toto*
Mixta latens animi vis est animæque potestas.'
iii. 275 *ff.*

[3] iii. 350-358. See also Pseudo-Plutarch, iv. 3, 11: Ἐπίκουρος καὶ τὰ πάθη καὶ τὰς αἰσθήσεις ἐν τοῖς πεπονθόσι τόποις τὸ δὲ ἡγεμονικὸν ἀπάθες.
This is some one else's summary of Epicurus's view.

[4] ll. 350-357.

[5] l. 257.

seat of the fourth element, nor can any sharp suffering penetrate thus far without all being so thrown into disorder that no room is left for life, and the portions of the soul fly abroad through all the pores of the body.'[1]

If we suppose the fourth substance to be common to the soul and the mind, a difficulty arises. Lucretius has told us that 'no pain or serious hurt' can penetrate to the fourth element without death ensuing. Again, he says that the mind can survive the loss of a limb or limbs, and therefore of a large portion of the soul (*anima*) which is lost with them.[2] How, then, can the fourth element be spread over the whole body along with the soul? For surely the loss of a limb is a 'serious hurt.'

Mr. J. D. Duff has made this point clear by an admirable illustration[3]: 'We must assume, then, that the *animus* and *anima* are identical in substance, and differ only in function. This difference may be illustrated by comparing the whole soul to a swarm of bees. The swarm consists of a nucleus where the bees are closely packed together, and of outlying parts where the congregation is not so dense; yet all parts consist of bees, and nothing but bees. So the *animus* is the nucleus of the soul-atoms which are assembled in greater numbers in the breast; and the *anima*, diffused through the whole body,

[1] 'Nec temere huc dolor usque potest pentrare neque acre
Permanare malum quin omnia perturbentur.'
iii. 252.

Munro renders *huc* 'to the seat of the fourth substance,' which seems to me to suit the reasoning of the paragraph.

[2] iii. 390-416.

[3] See his edition of book iii., p. xiv. He here follows Giussani, vol. i., 1896 (pp. 197-217; also in previous articles), and Heinze, who arrived at it independently (see his excellent edition of book iii., 1897, pp. 40-42, and notes on iii. 231-281). Giussani compares the *animus* spreading over the body from its seat in the breast to a comet with a central nucleus and a wide-spreading tail (vol. i., p. 206). But why does Heinze (p. 41) refer to Zeller as supporting his view? Zeller expressly says that 'only the unintelligent part of the soul' pervades the whole body; he treats the subject very briefly ('Philosophie der Griechen,' vol. iii., 3rd edition, 1881, p. 419).

consists of atoms exactly like the others, but less closely compressed. The greater condensation of atoms at the nucleus gives rise to a greater complexity and variety of atomic motions ; and from these are derived passion, will, thought, and consciousness itself.'[1]

How then does the *animus* differ in constitution from the *anima ?* Lucretius does not say precisely. Probably chiefly in the proportion of the fourth element which each contains. In the *animus* it might exist in the proportion of, say, fifty to one of the other component parts ; in the *anima* it would be in inverse proportion, say as one to fifty. Both soul and mind are composed of the same kind of elements but differently distributed. How, then, does each of the two keep its existence distinct ? Is it because of their difference in function ?

One wonders how Epicurus explained the doctrine that the soul has such complete command of the body, when his soul-atoms are both so much smaller and so much fewer than those of the body. We find a hint as to this in the Œnoanda inscription. Though the atoms of the soul (both of the reasoning and unreasoning part of it), says Diogenes, are so few, 'nevertheless, it girds round the whole man, and being bound fast to the body, binds it in its turn even as the smallest amount of rennet binds an immense quantity of milk.'[2] The simile is probably Epicurus's own. It seems curious, but is most apt and expressive from the Epicurean standpoint.[3]

Epicurus's notion of a fourth substance is, indeed, rather surprising. No doubt he thought by making matter as fine as possible to solve the difficulty of mind and matter, of the origin of Sensation—the side on which Materialism is as weak to-day as it was two thousand

[1] It seems implied at ll. 250 and 402 (see context) that the spine and spinal marrow are included in the 'inmost parts' in which the *animus* resides.

[2] Usener's edition, No. 32, *Rheinisches Museum*, 1892. The substance used for rennet is the acid juice of the fig-tree (ὀπός).

[3] Compare Lucr., iii. 323-349, and 390-416.

years ago.[1] To ancient notions, matter thus refined must have come near enough to our definition of spirit. But the difficulty remains the same as ever. Given dead

[1] Probably no one has stated this central difficulty of Materialism with more force, from one side at least, than Tyndall in his paper on 'Virchow and Evolution' ('Science Fragments,' vol. ii.). After computing material energy as developed in the brain by foot-pounds, he says: 'Consciousness on this view is a kind of by-product, inexpressible in terms of force and motion, and inessential to the molecular changes going on in the brain.' Again he inquires: 'What is the causal connection between molecular motions and states of consciousness?' 'My answer is,' he continues, 'I do not see the connection, nor am I acquainted with anybody who does. It is no explanation to say that the objective and subjective are two sides of one and the same phenomenon. Why should the phenomenon have two sides? This is the very core of the difficulty. There are plenty of molecular motions which do not exhibit this two-sidedness. Does water think or feel when it runs into frost-ferns upon a window-pane? If not, why should the molecular motion of the brain be yoked to this mysterious companion—consciousness? We can form a coherent picture of all the purely physical processes—the stirring of the brain, the thrilling of the nerves, the discharging of the muscles, and all the subsequent motions of the organism. We are here dealing with mechanical problems which are mentally presentable. But we can form no picture of the processes whereby consciousness emerges, either as a necessary link or as an accidental by-product of this series of actions.' Therefore Tyndall asserts 'Between molecular mechanics (the interaction of the brain molecules) and consciousness is interposed a fissure over which the ladder of physical reasoning is incompetent to carry us.' Frankly and forcibly as Tyndall has stated this conclusion, what is the distinctive tone in his manner of approaching such questions which so often jars upon us, even when, as now, he helps us to realize them more keenly? An acute critic of Tyndall's (Mr. C. W. Richmond) has said, referring to the passage just quoted, that men of Tyndall's way of thinking 'recognize this chasm, this "fissure" which their ladder is too short to cross, under an illusion common in the case of those who limit their studies to physical nature. They place themselves in idea *on the wrong side of the gap*. They think they can approach the problems of mind from the side of matter, and try in vain to lay the plank across.' This criticism applies pretty closely.—Picton makes a very ingenious attempt to realize the difficulty of explaining consciousness (of colour, for example) from any vibration of particles ('Mystery of Matter,' p. 35).

atoms, assorted according to coarseness or fineness into dead-matter atoms, organic-matter atoms, and soul-atoms, as minute as you like to make them, of any shape or moving in any order you like to conceive—how comes Sensation out of these? What or who has Sensation? Even supposing the individual atoms to be sentient (though Lucretius allows them Will alone), how comes it that so many isolated sensations of atoms separated by void are combined into one personal Consciousness?[1] Lucretius makes no attempt to answer this, except in stating that Sensation exists only in the Organism—in the animal body as a whole, soul and flesh together—not in its parts severally.[2]

Epicurus does not help us any more than Lucretius to understand the origin of Consciousness out of dead atoms, what we may call (to adopt a phrase of Schopenhauer's) 'the passage out of darkness into light.' According to Epicurus, sensation is produced by the joint acting and common motions of body and soul. 'We must certainly admit,' he says, 'that it is the soul which is the chief cause of sensation. Yet it would not enjoy this power, if it were not environed by the rest of the body. . . . The soul transmits [sensation] to the body which is in union with it, and . . . by a faculty of its own, it straightway realizes within itself the affection of sensation, and communicates it to the body in virtue of their close neighbourhood and sympathy.'[3] This reminds us of Schopen-

[1] According to the Epicurean doctrine of void—absolutely empty space between the atoms—no attempt can be offered at an explanaton of this side of the difficulty. Might not the modern conception of ether as an omnipresent fluid, 'continuously filling space,' be pressed into service here? Such a fluid might be conceived to convey sensation between atom and atom.

[2] Book ii., ll. 904-914. Lange correctly remarks on this passage that 'this sensation of the whole' can in no case exist 'without the whole having also a certain Being.' 'This organic Whole is quite a new principle in addition to those of atoms and empty space.'

[3] Καὶ μὴν καὶ ὅτι ἔχει ἡ ψύχη τῆς αἰσθήσεως τὴν πλείστην αἰτίαν δεῖ κατέχειν· οὐ μὴν εἰλήφει ἂν ταύτην, εἰ μὴ ὑπὸ τοῦ λοίπου ἀθροίσ-

hauer's explanation of the same subject : ' An extremely small portion of this matter, which we call brain or ganglion according to its degree of organization or complexity, possesses the marvellous property of expressing in itself everything which acts upon it ; *it is like a mirror in which the will is reflected and recognizes itself in all its degrees.*'[1] . . . ' This perceiving and conscious I is in relation to the Will [this including the notion of the outer world] what the image formed in the focus of a concave mirror is to the mirror itself, and like this image, it has only a conditional and apparent reality.'[2] However ingenious the illustration may be, and it is from Schopenhauer's standpoint an exceedingly apt one, it still explains nothing—any more than Epicurus's formula does. Both say simply, ' The soul has sensation because it has sensation '—nothing more !

Lucretius has said that sensation is but ' a fire which flesh and soul kindle between them.' He will not allow us to wonder at its sudden bursting into flame, any more than at its going out when the heart has ceased to beat, and at once

> ' Down goes the light
> Over the land and sea.'

Lucretius goes on to recount some twenty-eight arguments to prove that ' souls have birth and are mortal.'[3] Munro believes that ' these were all set forth in one of the thirty-

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ματος ἐστεγάζετό πως. Compare the passage just following, where Epicurus says that we cannot conceive the soul to have sensation apart from the body: *μὴ ἐν τούτῳ τῷ συστήματι ταῖς κινήσεσι ταύταις χρώμενον, ὅταν τὰ στεγάζοντα καὶ περιέχοντα μὴ τοιαῦτα ᾖ ἐν οἷς νῦν οὖσα ἔχει ταύτας τάς κινήσεις.* (Diog. L., x., 63-66. From the letter to Herodotus.)

[1] Ribot, ' La Philosophie de Schopenhauer,' pp. 158, 159.

[2] *Ibid.*, p. 40.

[3] iii. 425-829. Duff brings them under seventeen heads. There is some repetition which suggests the lack of final revision, but may be intentional. The arguments might all be the same as those of Epicurus, but the treatment might in this case differ widely.

seven books of Epicurus "On Nature."' This part of his poem suggests a more independent treatment than he allows himself in dealing with Epicurean physics; so, indeed, we might expect from his promise at the outset 'to set forth verses worthy of your attention, sought out by long study, and found out by labour that is sweet':

'Conquisita diu dulcique reperta labore.'

Some of these proofs are aimed against the pre-existence of the soul which the ancient defenders of immortality generally assumed.[1] In concluding, he dwells scornfully on the folly of linking together a mortal thing and an immortal. Is the soul sheltered from destructive powers? No! The soul sickens and suffers along with the body—nay, it has even ailments of its own which fret and wear it away—its fears for the future, its remorse for the past, madness, lethargy.

'To link together, forsooth, a mortal thing with a thing that cannot die, and imagine that they can have feeling in common and can act in accord, is sheer madness; for what can be deemed more incongruous, more discordant, or more self-contradictory, than for a thing which is mortal to be close-knit in wedded union to an immortal and everlasting thing, and thus to stand out fierce storms together?'[2]

In order that one may be immortal, its material texture must so totally differ from the other's as to make any enduring union impossible. Could so unequal a fabric hold together against the storms of a lifetime, the stress of toil, anxiety, sickness, or of all these combined? How soon would the two be rent asunder!

[1] 670-783.

[2] iii. 800-805; compare 845, 846:

'Nos qui comptu conjugioque
Corporis atque animæ consistimus uniter apti.'

Does the 'sævas procellas' of 805 refer only to actual tempests? Compare 506-509.

It having been proved that the soul is mortal, death can be nothing to us :

'As in the days of old we felt no distress when from all quarters the Carthaginians came marching to the battle, and the whole world beneath high heaven, shaken by war's fearful uproar, shuddered and quaked, and men were in doubt under the empire of which people of the two all mankind must fall, both by land and sea : even so, when we shall be no more, when there shall have been a sundering of body and soul, out of both which we are formed into one being—to us who then shall not exist, be assured that nothing can happen to rouse our consciousness at all—no, not if earth and sea shall be hurled together, and sea and sky.'[1]

Lucretius is, indeed, singularly blind to all that is implied in Life. Most strange sometimes do his words sound ; for instance, 'Never suppose that Life, the quality which we see floating on the surface of things, at one time born, then all at once perishing, can be inherent in the eternal atoms.'[2] A most strange conjunction of terms—*Eternal Atoms* but Life fleeting and merely superficial! Lucretius probably saw nothing jarring here, so sternly had he schooled his mind—doubtless after a period of questioning and struggle, fixedly put out of our sight in his poem—to accept the dogmas of his sect. He proceeds to give about thirty arguments for the mortality of the soul ;[3] his reasoning, still striking, must have been more so in his own day, when assuredly it sounded new and scientific, and the very wording carried something impressive. Next he gathers all the strength of his poetry in one long torrent of sombre eloquence to reconcile men to the thought of eternal death—not in any way going

[1] iii. 830-846.

[2] 'Neve putes æterna penes residere potesse
Corpora prima quod in summis fluitare videmus
Rebus et interdum nasci subitoque perire.'
ii. 1010-1012.
Compare l. 1006 and the context.

[3] iii. 417-829.

about to avoid the phrase—indeed, he uses the very words *mors immortalis*, *mors æterna*, with a most strange deadness of sense for what they imply. Doubtless the faith of not a few has wavered and shaken like a reed in the dark stream of some strong river before the rush of his argument, so direct, so impetuous is it.[1] If at first he faces the dreadful fact with stern Roman determination, he seems at length to dwell on the thought of annihilation at death with indifference, sometimes almost with delight. It is true he shows no slightest power to conceive a happy life in the other world. Yet, even while remembering that during his lifetime Rome was a slaughter-house, and all Italy bathed in blood, and, moreover, that priestly superstition painted the life to come as unjust and as horrible as the present was, even still there must have been *something abnormal, something unhealthy, in the nature of Lucretius* before one great human instinct could have been thus seared within him.

Strong, indeed, is his line of proof. But something protests within us. What of the deep human affection when one soul is drawn towards another irresistibly, because it discerns such beauty in the spirit, far surpassing that of the body? What of those feelings which, before all else, cherish the instinct of something deathless within us? Surely these had become withered within Lucretius's heart, blasted, perhaps, by some thunderbolt ere they had opportunity to expand and flower.

Yet other Epicureans, too, could boast of this article

[1] 'Another time, late over the mid-winter fire, reading the terrible lines in which Lucretius preaches his creed of human annihilation (book iii., especially ll. 912-977), and perhaps those on the uselessness of prayer and the sublime but oppressive fear, inevitable to the thoughtful mind in the awful vision of the star-lighted heavens (v. 1194-1217), so carried away and overwhelmed were the readers by the poignant force of the great poet, that next morning, when dawn and daylight had brought their blessed natural healing to morbid thoughts, it was laughingly agreed that Lucretius had left us last night all but converts to his heart-crushing atheism' (F. T. Palgrave in the 'Life of Tennyson,' vol. ii., p. 302).

of their faith. The great watchword of Epicureanism was *Securitas*—'Freedom from care.' This expresses the Epicurean ideal in its twofold aspect: first in relation to the gods, who are perfectly happy because they are perfectly free from care and take no heed of men, either to reward or punish them; and secondly in relation to men, because the ideal of human happiness is to have no anxiety either as to this world or as to an imaginary life to come.[1] We find the former in such an inscription as

'DIS SECURIS'—

'To the Gods who take no Heed.'[2] The latter expresses itself in the following inscription, surely a strange one:

'PERPETUÆ SECURITATI
SECURITATI ETERNE (*i.e.*, æternæ)'—

'To the Everlasting Freedom from Distress'—in other words, 'To the Eternal Nothingness.'[3]

Strange that the human soul can, as it would seem, entirely cease to vibrate to those hopes and fears which are—

'As old and new at once as Nature's self.'

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[1] *Securitas* answers to *ἀταραξία* (see Chapter XV.). To the Roman ear the word *securus* had acquired the added special meaning of complete *Divine* indifference to man.

[2] Renier, 'Inscriptions de l'Algérie,' 1755.

[3] Renier, 946, 947. Other such inscriptions are 'SOMNO ÆTERNO' on the tomb of an Epicurean philosopher, 'Matrinius Valentius': 'SECURITATI SACRUM,' Orelli, 1192, 4849, 4448.

CHAPTER X

ATOMIC DECLINATION AND FREE-WILL

THE reader who has thus far patiently followed Lucretius along the intricate passages of his atomic materialism, has now reached a point where the poet's path appears most tortuous and darkest. Here Lucretius seems, as it were, to descend underground and to lead us nowhere at all, except persistently away from the sunlight. Yet even here, where he might seem to have completely lost his track, we shall catch a vivid gleam of light far away.

Epicurus, as was before explained, asserts that the atoms have the power of Free-will and are able 'to decline'—that is, to swerve very slightly[1] from their path 'at no fixed time or place,' but according to their own volition. No doubt this doctrine is remarkable enough. It seemed very absurd indeed to the philosophers of Greece and Rome, the contemporary and later critics of Epicurus, who never tire of laughing at it[2]—but it does not appear so ridiculous to philosophical

[1] 'Nec plus quam minimum.'
ii. 244.

'Paulum
Tantum quod momen mutatum dicere possis.'
ii. 219, 210.

'Perpaulum quo nihil posset fieri minus (Cicero, 'De Fin.,' 19); ἐλάχιστον ('De Fato,' 9); ἄτομον παρεγκλῖναι μίαν ἐπὶ τοὐλάχιστον (Plutarch, 'De Solertia Anim.,' 7); ἀκαρὲς ἐγκλῖναι ('De anim. procr.,' 6).

[2] See Cicero and Plutarch, *passim*. Yet it so happens that the writer who is our chief authority at first hand for Epicureanism, Diogenes Laërtius, never mentions the doctrine. There could be no stronger warning as to the danger of pressing too far the 'argument from silence.'

students at present. In particular, M. Guyau, one of the most acute critics whom Epicurus has ever met with,[1] finds it, as we shall see, thoroughly coherent and logical. It is worth trying to understand by what arguments so shrewd a thinker as Epicurus could justify so audacious a notion.

Absurd or even childish as the doctrine may appear to us, we must remember that the generation of Epicurus inherited from the Ionic philosophers a conception of matter as living. (It was these earlier physical philosophers whose researches culminated in the atomic theory.) The doctrine of Declination is exactly consistent with the conception of matter as living, and but for some such notion in men's minds could never have arisen.

In this atomic swerving Epicurus had a twofold purpose. Firstly, the mere fact of declination is enough to bring his atoms into contact. In the second place, it will be noticed that he carefully qualifies the declination ; it takes place

> 'Incerto tempore ferme
> Incertisque locis,

'at quite uncertain times and uncertain spots.' He has a reason for so doing. It is solely for the purpose of solving a great philosophical question, over which controversy raged as fiercely in Lucretius's day as it has done in our own—the question of Free-will as opposed to Fate and Necessity. Epicurus emphatically maintained the doctrine of Free-will in opposition to Heraclitus, Democritus, and most of the Stoics, who held an everlasting and inexorable Necessity, and denied the existence of individual self-will. By his conception of a

[1] 'La Morale d'Épicure,' by Jean-Marie Guyau, 1878. This brilliant work was composed in its first form by a youth of nineteen, under the title 'Memoir on Utilitarian Ethics from Epicurus down to the English School,' and was crowned by the French Academy in 1874. The memoir was afterwards expanded into two books—the one above-named, and the well-known 'La Morale Anglaise Contemporaine,' 1879, dealing with modern British philosophy from Bentham to Spencer and Darwin.

regular order in Nature, Epicurus had delivered himself from the notion of gods constantly interfering with the world and filling men with the fear of unseen adverse powers. But, when escaped from this, he found himself all at once confronted by the yet more terrible phantom of Necessity—destroying Free-will and transforming man into the slave-machine of Fate. How did he again escape from so dreadful an alternative? It was by an expedient singularly bold and simple.[1]

The passage in which Lucretius defends Declination is one of the most interesting in his poem. He is fighting at close quarters for the most characteristic and distinctive doctrine of his own and his master's creed. These forty lines must be taken as the product of a philosophical controversy, as fierce and voluminous as any that have raged in our own day, or been discussed in the pages of our philosophical reviews. We hear the clash of the combatants' weapons as we read this short notice, containing a phrase or two of decidedly controversial coinage. The whole paragraph[2] (which I now quote in full) is most closely reasoned. No word is thrown away.

'For herein, beyond a doubt, for each man his own

[1] I may refer here to the later chapter on M. Guyau's book. In some brilliant pages, there quoted, M. Guyau has realized, more vividly than any other writer, the dilemma which confronted Epicurus, and the unique solution of which he attempted. So far as this, we shall find M. Guyau an admirable guide.

[2] 'Denique si semper motus conectitur omnis
Et vetere exoritur semper novus ordine certo,
Nec declinando faciunt primordia motus
Principium quoddam quod fati fœdera rumpat,
Ex infinito ne causam causa sequatur,
Libera per terras unde hæc animantibus exstat
Unde est hæc, inquam, fatis avolsa potestas,
Per quam progredimur quo ducit quemque voluntas,
Declinamus item motus nec tempore certo
Nec regione loci certa, sed ubi ipsa tulit mens?
Nam dubio procul his rebus sua cuique voluntas
Principium dat et hinc motus per membra rigantur.
Nonne vides etiam, patefactis tempore puncto,

will makes the beginning, and thence movements are spread in a stream through the limbs. Do you not see, too, when the barrier has at a given moment been flung open, that still the eager might of the horses is not able to break away so suddenly as their mind longs to do? For the whole store of matter throughout the whole body must be sought out in order that it may be stirred up all over the frame, and may with one united effort obey the desire of the mind, so that you see that the beginning of motion is born from the heart, and that it issues in the first place from the desire of the

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Carceribus, non posse tamen prorumpere equorum
Vim cupidam tam de subito quam mens avet ipsa?
Omnis enim totum per corpus materiai
Copia conquiri debet, concita per artus
Omnis ut studium mentis conixa sequatur;
Ut videas initum motus a corde creari
Ex animique voluntate id procedere primum,
Inde dari porro per totum corpus et artus.
Nec similest ut cum impulsi procedimus ictu
Viribus alterius magnis magnoque coactu:
Nam tum materiem totius corporis omnem
Perspicuumst nobis invitis ire rapique,
Donec eam refrenavit per membra voluntas.
Iamne vides igitur, quamquam vis extera multos
Pellat, et invitos cogat procedere sæpe
Præcipitesque rapi, tamen esse in pectore nostro
Quiddam quod contra pugnare obstareque possit?
Cuius ad arbitrium quoque copia materiai
Cogitur interdum flecti per membra, per artus,
Et proiecta refrenatur retroque residit.
Quare in seminibus quoque idem fateare necessest,
Esse aliam præter plagas et pondera causam
Motibus, unde hæc est nobis innata potestas,
De nilo quoniam fieri nil posse videmus.
Pondus enim prohibet ne plagis omnia fiant
Externa quasi vi; sed ne mens ipsa necessum
Intestinum habeat cunctis in rebus agendis
Et devicta quasi hoc cogatur ferre patique,
Id facit exiguum clinamen principiorum
Nec regione loci certa nec tempore certo.'

ii. 251-293.

mind. From this it is next distributed through the whole of the body and limbs. It is quite different when we move on impelled by a blow, inflicted by the strong power and strong compulsion of another,[1] for then it is plain that all the matter of the whole body moves and is hurried on against our desire until the will has reined it in throughout the limbs. Do you see now, therefore, although an outside force in many cases drives men on and often compels them to go forward against their will and to be hurried on headlong, that still there is within our breast something which is able to fight against and to resist it? And at the beck of this something also, the whole amount of matter is compelled sometimes to change its course all over the limbs and frame, and after it has been driven forward, it is reined in and settles back into its place. *Wherefore in atoms as well*[2] *you must admit the same, that in addition to blows*[3] *and weights there is another cause of motions whence this power has been begotten in us, since we see that nothing can come from nothing.* For weight forbids that things should be done altogether by the agency of blows, through, as it were, an outward force; but that the mind itself does not feel an internal necessity in all its actions, and is not completely overpowered, as it were, and compelled to bear and put up with this, is caused by a minute swerving of the first-beginnings at no fixed part of space and at no fixed time.'

It is worth while to retrace Lucretius's reasoning, and keep as close to it as we can. It is pretty nearly this:

If the whole world of Nature and man is a mechanism in which cause follows cause and motion follows motion in a fixed order from everlasting, we could not possibly

[1] 'Viribus alterius magnis magnoque coactu.'

The repetition of *magnis* in this line has a pointed force: it is intended to contrast with the small beginning of self-originated motion.

[2] *I.e.*, in atoms as well as in human beings.

[3] 'Plagæ'—*i.e.*, the blows of atoms in collision. *Plagæ* is Lucretius's term for mechanical force.

have Free-will. Here Lucretius appeals emphatically to our inner consciousness. 'Beyond a doubt' we feel and know that, when we move, our own will makes a beginning of motion, and this motion gradually increases. We see the same thing in horses which, when the signal has been given in a race, cannot start at once, though eager to do so. The motion has to begin at the heart, and spread through the limbs. Lucretius considers the gradualness felt and discerned in the movements of living things (which originate from within and gradually grow) as a proof of Free-will. Movement caused by Necessity is quite different. The tendency of outside force is to make the body acted on move all at once. Thus when a man is violently pushed, he moves all at once. Here again (ll. 271-283) Lucretius makes a confident appeal to the facts of personal experience—a consciousness so clear and vivid that it cannot be countersaid.[1] How clearly we discriminate between moving of our own accord and being pushed! In the latter case we are propelled forward, but all the time we feel with positive conviction that there is 'something within our breast' which can resist the outer impulse, and finally checks it. The same is the case with atoms, too.[2] In the world of Nature[3] all motion is caused by 'blows' and 'weights'; but there must be in all atoms, and particularly in the

[1] Mr. Henry Sidgwick, in his 'Method of Ethics,' has emphatically expressed the convincing force of this argument from individual experience. After first allowing that there is 'an almost overwhelming cumulative proof' that human Free-will does not exist, he speaks as follows: This evidence 'is more than balanced by a single argument on the other side, the immediate affirmation of consciousness in the moment of deliberate volition. . . . No amount of experience of the sway of motives ever tends to make me distrust my intuitive consciousness that in resolving, after deliberation, I exercise free choice as to which of the motives acting upon me shall prevail.'

[2] The inference conveyed by *quoque* must not be forgotten. It refers to the preceding illustrations of free-will action in men and animals. It means 'in atoms as well as in human beings.'

[3] In the Appendix an apparent difficulty in this part of Lucretius's argument is discussed.

atoms forming the soul, another cause of movement—namely, the power to decline at will. This is necessary, since if the soul-atoms have not this power, while the soul has it, we violate the first principle—nothing can come from nothing. In thus applying his axiom 'ex nihilo nihil fit' (l. 287), Lucretius draws the final conclusion—a bold enough one, too—of a close-reasoned argument. He reasons thus: '*I cannot account for Free-will appearing in human beings, the highest product of atomic evolution, unless it were there from the first. If men have Free-will, then Matter which they come from must have Free-will too, since nothing can come from nothing.*'

Lucretius goes on, still speaking strictly of the mind, to discriminate pointedly between two kinds of necessity which may enslave it, an external one and an internal one—*externa vis* on the one hand, and *necessum intestinum* on the other.[1] The natural gravity of the mind-atoms would offer a certain amount[2] of resistance to 'blows' from without—that is, to the Necessity which reigns everywhere in Nature. But though weight is less of an *externa vis*, still it is fatal within the mind, and would, even more hopelessly, imprison *mens ipsa*—the mind within her own house.[3]

[1] M. Guyau has clearly enforced this, and has very aptly shown with reference to this passage that ancient philosophers held weight (as causing motion to originate from within) to be less of the nature of necessity than an outside force was. Compare Cicero, 'De Fato,' xi.: 'De ipsa atomo dici potest enim, quum per inane moveatur gravitate et pondere, sine causa moveri, quia nulla causa accedat extrinsecus.'

[2] These, it must be remembered, are exceedingly minute as compared with dead-matter atoms. The word 'omnia' here is emphatic.

[3] M. Guyau (pp. 85-87) has done service by referring to the very ingenious attempt of Carneades to show that Declination was unnecessary because, just as it is the 'nature' of the atom to move by its own weight, similarly it is the 'nature' of the mind to move of its own accord. 'Thus,' says M. Guyau, 'by the idea of *nature*—that is to say, of a cause which should in reality be neither free nor necessary—Carneades hopes to reconcile the regularity of movements in the universe with their arbitrary freedom in man.'

Therefore, if the mind is to be free, the atoms composing it must possess Free-will. Nothing else can deliver the mind from Necessity.

Such is the reasoning by which Lucretius proves that this marvellous power of Declination exists everywhere around us, in the atoms composing every form of matter. What, then, comes of it ? we cannot help asking. Does a power like this exist, yet produce no effect in the world ? On this subject M. Guyau has built up a theory which he endeavours to prove from historical evidence to have been the actual teaching of Epicurus ; nay more, M. Guyau seriously accepts this theory as scientifically true from a nineteenth-century standpoint. According to him, ' Declination ' does not disappear without any result, but produces wondrous effects in Nature. His theory is one of the most remarkable castles-in-the-air which have ever been raised, and will certainly not be forgotten in the history of philosophy.

In insisting on the importance of our personal consciousness of Free-will, and in reasoning back, after a fashion, from it to the orgin of all Force, as well as in supposing Will to exist everywhere in every form of matter, Epicurus strongly reminds us of a very remarkable modern philosopher, Schopenhauer. According to Schopenhauer, the only direct knowledge which we have is that of our Will, and our personal consciousness of Will is the only key to the essence of nature and of natural forces. Science, he says, can never teach us what a law *is*, nor yet what a force *is*, nor what a cause *is*. All the physical sciences have one common defect—their method is exterior. They remind us of ' a man who wanders round and round a castle, vainly seeking for an entrance, and

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The ' nature ' by which Carneades explained the difficulty appears to be a kind of ' inherent potency,' like that of which we have heard a good deal lately. It is not impossible that, as Guyau seems to imply, in this passage Lucretius is expressly combating the very arguments of Carneades.

meanwhile sketches the outside of it.' It is only our own sense of Free-will action, in the body by which we are rooted in the world, that enables us to solve the riddle, and tell what the essence of force is. Schopenhauer insists on reducing all the forces of Nature to Will. 'I consider,' he says, 'every natural force as a Will. Will is essentially identical with all the forces which act in Nature, the various manifestations of which belong to the species of which Will is the genus. *It is the direct consciousness which we have of Will which alone conducts us to the indirect knowledge of the other Forces.* . . .' 'If, then, we reduce the notion of Force to that of Will, we reduce the unknown to a thing much better known, to the only thing directly known, and this greatly extends our knowledge. If, on the opposite, we reduce, as has hitherto been done, the concept of Will to that of Force. we abandon the only immediate knowledge of the world which we have: we allow it to be lost in an abstract conception which is derived from phenomena, and with which we shall never be able to get beyond them.' Many critics have charged Schopenhauer with simply exalting Force under the name of Will.[1] According to them, his 'Will' simply requires to be translated by the name of 'Force.' This criticism is only very partially true. We must remember that Schopenhauer's derivation of his doctrine from our own direct consciousness of effort, when we will any act, affords a real basis for his conception, and to a considerable extent justifies his application of the term Will to denote the essence of all things. In thus claiming that we understand the operation of natural forces only in virtue of our own acts of conscious Will, Schopenhauer can reasonably claim that he proceeds from the known to the unknown. If on one side, as he

[1] So, according to M. Ribot ('La Philosophie de Schopenhauer,' Paris, 1874, p. 152), 'This blind unconscious Will can only be Force'; and again, p. 177, Schopenhauer 'places Force at the crown of things under the name of Will.' Schopenhauer himself utterly refuses to allow his concept of 'Will' to be thus reduced to Force. See M. Ribot, pp. 67, 68.

says, his 'Will' is 'only an x, an absolutely unknown quantity,' on the other it is, he asserts, 'infinitely better known to us, and more certain than all else.' In reality Schopenhauer's philosophy, which reduces the world to a 'manifestation of Will,' is a kind of Pantheism, but Pantheism of a kind peculiar to himself. We cannot here reproduce the elaborate argument in which Schopenhauer insists on reducing the concept of Force to that of Will.[1] There are several points of contact, some of them pretty close, between Schopenhauer and Lucretius, but at present we can only remind our readers how Lucretius too intimately associates Will with the origin of Force.

There are two aspects from which we may consider Lucretius's doctrine of atomic Declination :

1. In the first place, it is well to observe how simple, yet how efficacious a part it plays in the Epicurean system. Its rôle is a double one. According to Lucretius, the atoms, which are conceived to fall straight downwards, from all eternity, in parallel lines like drops of rain, would never meet, and by meeting create the world, but that occasionally they swerve a very little from their path, and so come into collision. If we can move at will, Lucretius argues, therefore the atom must be able to move at will, and if it move at will, it must go off the perpendicular line of Necessity, and by thus declining the atoms are brought into contact. Thus the Epicurean explanation of Free-will at the same time explains the origin of the world.

2. The doctrine is far more interesting, however, when we consider the philosophical consequences implied in it.

(1) The reasoning of Lucretius which we have before abstracted is cogent enough. We see that Lucretius is not merely daring, but also logical, in assigning Will to Matter. That which is in the effect must also be in the

[1] I may refer to the admirable chapter, 'La Volonté,' in Ribot's excellent little work above mentioned. See also Professor Caldwell's vigorous work, 'Schopenhauer's System in its Philosophical Significance,' 1896.

cause ; therefore, if Free-will be in man, it must also exist in the atoms of which he is composed. A human creature endowed with Free-will cannot come from atoms which do not possess volition. From Lucretius's standpoint, this is a logical Necessity. (It is certainly surprising, however, that the author of a materialistic system should have allowed the existence of Free-will at all.) Very noteworthy, too, is the manner in which Lucretius strengthens his argument by appealing to our personal consciousness of effort. The vividness and directness of this feeling is, he implies, something unanswerable. No arguments for Necessity can do away with it.

A theory substantially the same as Lucretius's, but more subtle, has been stated in our own time. I refer to Professor Clifford's doctrine of 'Mind-Stuff,' which runs so closely parallel with that of atomic Declination that it is worth while to give some account of it here. The two doctrines illuminate each other. Professor Clifford's theory, stated shortly, is, as nearly as we can reproduce it, the following :[1]

Along with every fact of consciousness in our mind there goes some disturbance of nerve-matter. When a man is conscious of anything, 'there is something outside of him which is matter in motion, and that which corresponds inside of him is also matter in motion.' Both are made of the same stuff ; the object outside and the optic ganglion are both matter, and that matter is made of molecules moving about in ether. Thus, whenever the ganglion of the brain is disturbed because certain pieces of grey matter there have arranged themselves in the figure of a square, the consciousness of a square is produced in my mind. Thus, there are two classes of facts which always run parallel—'physical facts and mental facts.' But there exist far lower and less complex forms of feeling than such as make up human consciousness.

[1] It is worked out in two papers, 'Body and Mind,' and 'On the Nature of Things-in-themselves,' in his 'Essays and Remains,' vol. ii., 1879. The first statement of the doctrine is said to be found in Wundt's 'Grundzüge der physiologischen Psychologie.'

'We are obliged to assume, in order to save continuity in our belief, that *along with every motion of matter, whether organic or inorganic*, there is some fact which corresponds to the mental fact in ourselves. The mental fact in ourselves is an exceedingly complex thing; so also our brain is an exceedingly complex thing. We may assume that the quasi-mental fact which corresponds and which goes along with the motion of every particle of matter, is of such inconceivable simplicity, as compared with our own mental fact, with our consciousness, as the motion of a molecule of matter is of inconceivable simplicity when compared with the motion in our brain.' According to Professor Clifford, our consciousness is a very complex thing indeed. 'When a stream of feelings is so compact together that at each instant it consists of (1) new feelings, (2) fainter repetitions of previous ones, and (3) links connecting these repetitions, the stream is called a consciousness.' No single feeling of ours is a unit. Every feeling of mine is a most complex structure, built up from a great many different elementary feelings which are grouped together in various ways, just as the action of my brain is made up of a great many elementary actions in different parts of it, grouped together in the same ways. Thus each elementary feeling corresponds to a special, comparatively simple, change of nerve-matter. It is a popular error to suppose that a feeling cannot exist by itself without forming part of some consciousness. If, then, we go back along the line from the organic to the inorganic, and if 'according to the complexity of the organism is the complexity of the consciousness,' where are we to stop? Where does the breach of continuity take place? Where does some degree of feeling cease to accompany the motion of matter? 'There is only one way out of the difficulty, and to that we are driven. Consciousness is a complex of ejective facts—of elementary feelings, or, rather, of those remoter elements which cannot even be felt, but of which the simplest feeling is built up. Such elementary ejective facts go along with

the action of every organism, however simple;' but it is only with a complex nervous structure that the complication of feelings called Consciousness co-exists. 'But as the line of ascent is unbroken, and must end at last in inorganic matter, we have no choice but to admit that *every motion of matter is simultaneous with some ejective fact or event* [*i.e.*, elementary feeling] *which might be part of a consciousness*.' From this follows the important corollary, 'A feeling can exist by itself without forming part of a consciousness. It does not depend for its existence on the consciousness of which it may form a part.' These elements of feeling, of which our simplest ordinary feeling is a complex, Professor Clifford calls *Mind-Stuff*. 'A moving molecule of inorganic matter does not possess mind or consciousness, but it possesses a small piece of mind-stuff.'

By a process of reasoning which is very hard to apprehend,[1] Professor Clifford decides that the thing-in-itself, the reality which underlies all matter, is the same stuff which, when compounded together, produces mind. It is not the same thing as mind, but is made of the same stuff. Thus the universe consists entirely of mind-stuff. 'There is no matter without something like mind behind it.' According to this theory, all matter is mind-stuff *on one side*, on what may be called its interior side. We naturally ask, then, Is there no mind-stuff on a vast scale answering to the inner side of the vast material universe? and may we not then conceive the reality underlying the whole world as one great mind? No, says Professor Clifford, 'Human consciousness is, so far as we know, the highest that exists.'

Of course, Professor Clifford's theory does not by any means explain the origin of Consciousness. 'Every mental picture,' says Clifford, 'is made up of exceedingly simple mental facts, so simple that I feel them only in groups.' For one thing, if a single elementary feeling does not produce consciousness, why should mere com-

[1] 'Lectures and Essays,' vol. ii., pp. 85-87.

plexity produce it ? If every molecule of my body possesses some degree of sentiency, does this account for my conviction of personality ? Yet the theory, however insufficient, is instructive. The materialist feels that it is a hopeless task to explain the origin of Consciousness or of Free-will out of dead atoms, without some break in the continuity of development, some new entrance of Energy into the field. His only escape from the difficulty is this : the atoms are not ' utterly dead,' but contain in a faint and weak form the faculties of consciousness and mind which are found in the highest product of Evolution, man. Thus Professor Clifford, in order to explain the evolution of Mind from atoms, asserts that every atom of matter corresponds to an atom of Mind-Stuff—that is, of something analogous to Mind. He thus builds up Mind out of a multitude of mind-atoms—that is to say, of elementary feelings which can exist by themselves as ' individuals,' *simplicitate,* as much as can the Lucretian atoms, but which are almost as small in comparison with the consciousness of any one human being as Lucretius's atoms are in comparison with a human body. Lucretius, again, who believes in Free-will, can only explain it by assigning Free-will to the atoms. The reasoning of both, starting from a similar standpoint, is substantially the same, and the two theories of ' Mind-Stuff ' and of Atomic Declination deserve to be placed side by side. Both are based upon the same principle—

> ' Unde hæc est nobis innata potestas
> De nilo quoniam fieri nil posse videmus,'

and apply it with equal boldness. Both, moreover, show to us Materialism confessing its own weakness to account, unaided, for the origin of Mind.

(2) Lucretius is a most ardent believer in individual Free-will, which, indeed, was one main dogma of Epicureanism. He supposes Declination to be amply potent in the way of making this possible. In giving an account of Epicurean psychology, a most important passage was

quoted from Herschel, showing that unless we suppose the will to exert some amount of Force, however slight, we can hardly conceive its action. Is not this same principle most clearly implied in Lucretius's account, already explained at full, of the method by which Will sets our body in motion ? The Will acts directly on the smallest soul-atoms, those of the fourth principle ; these in turn move the coarser and more coarse till the whole body is set in motion, but this results entirely from a very slight original impulse given by Will. However tiny and easily moved these soul-atoms are, it still requires some exercise of Force, however slight, to set them in motion. Lucretius's explanation of the manner in which Will makes the body move, *most distinctly implies a power in the Will to originate Force.*

But what is to be thought of the other use of Declination—namely, in order to bring the falling atoms into collision ? But for Declination, Lucretius believes, these atoms would ' fall downwards through the void, like drops of rain,' barrenly, and ' Nature would never have produced anything.' It alone brings them into collision, so that they become a source of power—the source from which all the Energy of the universe is derived. Can it be said that in this notion Lucretius is carrying out the idea of Personal Causation in the same way as Martineau and Herschel have done ? Of course, Lucretius's materialism could never have allowed him to rise to the thought that *all* Force may be the outcome of Will—' that any causal power other than Will is unthinkable.' Can it be said that he grasped this thought at all ?

How did Epicurus arrive at the strange notion of Will residing in the atoms and bringing them into creative action before the world began ? Lucretius's language in discussing Free-will shows a strong consciousness of Personal Causation, as exerted by man himself. Indeed, he refers almost triumphantly, as a convincing argument for the existence of Free-will, to our vivid personal consciousness of exerting effort when we will to move.

'Beyond a doubt,' he says, 'his own will makes a beginning for each;' and he goes on to describe the process. Now, is not the thought natural enough? If Free-will originates action in men (and Lucretius realizes this truth very strongly), may it not, in the world of Matter, too, give to the atoms the first impulse which finally results in creation? This is all that Lucretius supposes Declination to do. *It gives the initial impulse in* both cases. As motion in the human body must be begun by the Will, so Will only can be supposed to give the first impulse, without which the atoms could never create. We have seen that the step from Personal Causation back to first-existing Causation is natural enough. I believe that Lucretius, too, may have had a perception of this in a blind unreasoning way—partly, it would seem, as a corollary from his belief in Will originating bodily motion.

(3) At first sight, it is true, the volition of the dead atoms is hardly what we call Will. On this point, again, Schopenhauer comes into remarkable agreement with Epicurus. According to Schopenhauer, too, Will is essentially unconscious, and becomes conscious only by accident; it exists everywhere as a blind tendency in Matter, but mounts up by degrees through vegetable and animal life till it appears in man, in its highest degree of objectivation, as intelligent and distinctly conscious of itself. It is remarkable that Epicurus and Schopenhauer *both conceive Will to be essentially unconscious* and to exist everywhere in Matter as a blind force, but, by some miraculous transformation which neither of them takes into account, to emerge in man as a conscious one.

Acts of volition on the part of dead atoms are, in truth, hardly thinkable. A dead Will is indeed an absurdity, but Will without life was one of the Epicurean dogmas which Lucretius, as a convert, had felt himself bound to accept. He will not even admit to himself that there is anything unnatural in it. As we have said, he most emphatically insists that Matter is 'utterly dead.' After having reduced the whole universe to atoms, he makes

merry, with somewhat ghastly laughter, over the idea of these little particles having life. If so, you may think of them 'laughing and weeping, and learnedly discussing Epicurean doctrines.'[1] To do this, and conceive them living, is 'raving madness,' he says. Yet how far is that more absurd than his own conception of atoms that have wills of their own, and can move to the right or left, 'as they wish,' *sponte sua*, but which are at the same time 'utterly dead'?

However inconsistently, Lucretius has been *compelled* to admit within his scheme of evolution something besides dead Matter. For it must not be forgotten that the Matter which, he says, is so potent to evolve life is Matter + Free-will.

Various recent materialists have attributed the rudiments of Will to Matter. But that Epicurus should have reached this conclusion in the fourth century B.C. is astonishing. It deepens the significance of the doctrine, while it shows the *modernness* of his standpoint.

It is now evident that the strange doctrine of Free-will residing in the falling atoms before the beginnings of the world, and existing everywhere around us in every molecule of Matter, is not so entirely arbitrary as at first it seemed. Underlying it there is an element of truth.

Note on Professor Clifford's Theory of Mind-Stuff as anticipated by Gassendi.

It is worth while to point out that Professor Clifford's very notable theory was substantially anticipated by an ardent modern disciple of Epicurus, who published his great work on Epicurean science and ethics two hundred years ago—Pierre Gassendi. 'As of a certainty,' says Gassendi, 'whatever is in the fire existed first in the wood, but in a latent state, . . . thus, whatever substance is in the soul that exists and moves within the body of an animal, the same first existed in the food, seed, or other matter which produced it.' Turning to the lower forms

[1] ii. 973-990.

of life, Gassendi sees in the power to assimilate food 'the first element, as it were, of sensation.' Thus, in plants he recognizes in a weak form Hunger and Appetite as seen in the wandering of their roots underground in search of food, Taste and Touch as seen in their preference of one soil as nutriment to another, and Pleasure as shown in their joyful outburst of growth in spring after the winter sleep.[1] None of these feelings can exist without some faint degree of the sense which we call Touch. Again, when the vine, cucumber, and pea climb by help of their tendrils, is not their movement due to consciousness? 'What else do men do when they use their hands in climbing?' Even in inanimate matter he sees something like Consciousness, and notably so in the magnet. In a very remarkable passage[2] he shows how the iron is impelled to the magnet by a 'kind of desire' (*appetitu quodam*). The magnet 'appears to turn towards itself and to attract the very soul, as it were, of the iron, which by its own force

[1] 'Animadversiones in Diogenem Laertium de Vita et Philosophia Epicuri,' 3rd edition, Leyden, 1675, vol. i., pp. 263, 264.

[2] Vol. i., pp. 202, 203. 'There appears,' says Gassendi, 'to be in the magnet and in the iron a certain quality analogous to Consciousness. . . . For as an animal when struck by the aspect of an external object, immediately desires it, and is impelled towards it, thus the lesser magnet or the iron, as soon as it is smitten by the form of a greater or more powerful magnet, is impelled towards it by a kind of desire (*appetitu quodam rapitur ad ipsum*).' As with objects which men see, so with the magnet—its attraction can only work subject to the condition of distance. 'Just as a sensible object attracts to it the mind of man, and his mind influenced by desire moves his body to that object, even so the magnet also, through its transfused form, appears to turn towards itself and to attract the very soul, as it were (or, as it were, the flower of the substance), of the iron, which by its own force carries with it towards the magnet the whole mass of the iron. It would be difficult to believe how a thing so slight as is our conscious soul . . . can move the weight of our body, which is so heavy and inert, unless experience assured us of it. What else, then, should we believe to be in the iron except a soul, or at least something analogous to soul, which, although very slight, still is able to move the rest of the mass, very heavy and inert though it be.'

carries with it to the magnet the whole mass of the iron,' just as our own soul, though light, moves our body. There must be in the iron 'a soul, or at least something analogous to soul.'

This notion—Lord Bacon held it also—that something like soul runs through the whole of matter[1] explains the very remarkable illustration which Gassendi used in explaining the action of Gravity. The falling stone falls, he says, because it 'feels the earth' (*sentit terram : terra in eo sensum sui facit*)—that is to say, a certain force reaches it from the earth and overpowers it. 'We must therefore admit,' says Gassendi, 'that something comes to the stone from the earth, that something is transmitted from the earth to it which draws it earthwards. . . . It is very like the case of a boy who is attracted to an apple : it is necessary that the apple should transmit either a picture of itself to his eye or its odour to his nostrils before the boy is drawn to move to it.[2]

Thus, Gassendi finds in the magnet as well as in plants a foreshadowing of 'consciousness' (*adumbratio sensus*), and he traces this gradual strengthening as it mounts up through shellfish and worms to the higher animals. The plant either has no soul, or its parts are not so connected with the soul as to produce sensation ; in the shellfish, again, the connection is close enough to produce sensation, so that it feels when pricked, and is able to close its shell.[3] 'Nature,' he says, 'is not accustomed to pass from one extreme to another except through intermediate stages. Thus, for example, the fruits of trees become sweet instead of bitter, fragrant from scentless, yellow from green, by a gradation so imperceptible, that at the beginning nothing is discerned of that quality which is to be, and at the end generally nothing of that which was at the beginning, so that we may thus understand that *unconscious matter*

[1] See Appendix, 'Gassendi's Explanation of Gravity and Magnetism.'

[2] Vol. i., p. 245.

[3] Gassendi supposes sensation to take place by means of a recoil of the animal spirits contained in the nerves (vol. i., p. 269).

becomes conscious by an exactly similar gradation, which certainly it is not within human power to trace '[1] (vol. i., p. 270). Again, because all living things, even the meanest, those spontaneously generated, come from seminal molecules, each after its kind, which have existed either from the beginning of the world or from a later time, 'for this reason it cannot absolutely be said that conscious things come from non-conscious, but rather from particles which, though they do not actually possess consciousness, nevertheless actually are or do contain the elements of consciousness (*principia sensus*).' Are not these 'elements of consciousness' contained in Gassendi's molecules much the same as Clifford's simple elementary feelings or Mind-Stuff ?

In reality, by his distinction (vol. i., p. 272) between *prima materies*, or non-conscious atoms, and *secunda materies*, or molecules which possess in a faint form the rudiments of sensation, Gassendi does not at all escape the difficulty of the origin of consciousness. To this difficulty, indeed, he is by no means blind. Neither Epicurus, he says, nor Galen, nor any other believer in the spontaneous origin of sensation from atoms will ever explain the mystery. 'He will never say anything more than that infinite changes and mixtures must take place, by means of which the faculty of sensation must be developed in more or less degree, and he will never at all succeed in defining even any smallest one of these infinite changes.' Elsewhere he asks, How comes it, when neither the particles of fire forming the soul which permeates the body,[2] nor those of the body itself, have sensation, that from the blending of these two sensation can arise ? 'Either I am greatly mistaken,' he says, 'or it altogether surpasses human wit to conceive.'[3] Are we any nearer the explanation to-day ?

[1] He even defends this opinion by the aid of Lucretius, ii. 931-943, which he totally misinterprets.

[2] Gassendi supposes the sensitive and animal souls, the *anima sentiens* and the *anima vegetans*, to be a kind of flame (*flammula*).

[3] Vol. i., pp. 270 and 273.

Gassendi brings forward his suggestion of a gradual imperceptible progress from molecules containing the 'rudiments of sensation' up to complete living consciousness in the most cautious manner, as if he realized its bearing as a materialistic argument.[1] This theory of Gassendi's and Guyau's doctrine of 'Spontaneity' are both the outcome of a revival of Epicurus's scientific system in the sixteenth and nineteenth centuries respectively. The tree of Epicureanism, which has even in modern times twice broken out into fresh bud and leaf, and put forth on French soil two such remarkable offshoots, cannot even yet be called dead.

[1] 'Propono seu potius balbutiens attingo, ut quatenus licet, insinuem progressum quo res videntur evadere ex insensilibus sensiles' (vol. i., p. 270). See also his 'Disquisitio Metaphysica' on Descartes, where he says: 'You observe that you think. Certainly that cannot be denied. But *it remains for you always to prove* that neither those minds which we call animals, nor any other form of matter, however fine, subtle, pure, and agile it may be, can be rendered capable of thought' (p. 183).

CHAPTER XI

THE THEORY OF IMAGES

In Epicurus's day there were various theories of perception. If the eye sees any object, say a rock, does the eye in the act of seeing exert any influence on the rock, or does the rock exert any influence on the eye, or do both exert a mutual influence? The first is the view of the Stoics, who held that a warm breath goes out from the soul which, so to say, transforms the intervening air into a cone of which the base is the object seen while the apex reaches the eye, thus connecting the eye with the object.[1] The third is that of Empedocles, who held that an efflux passes from the object seen towards the eye, and at the same time an efflux of fire from the eye towards the object, and that perception by sight occurs when the two streams meet, apparently close to the eye, so that the efflux from the object also enters the pores of the eye. The second explanation is that of Epicurus, and is also fairly consistent with that of modern science.

Epicurus explained the operation of all the senses by the theory of 'emanations' or 'effluxes'[2]—that is to say, that all bodies discharge atoms which enter the pores[3] of our various organs of sense. This theory he borrows from Empedocles, and makes it the foundation-stone of his philosophy. Here again we shall note the shrewdness with which Epicurus took the measure of

[1] Epicurus rejects this notion in the remark on hearing (Diog. L., x. 53).

[2] ἀπορροάι.

[3] πόροι, literally 'passages.'

the average man who is not a philosopher, and supplied 'something practical' in answer to the demands of the time. Since the great metaphysicians of the previous generation, the world had grown somewhat weary of metaphysics. In that age of social chaos, when life was precarious and national ideals had been lost, instead of endless definitions of 'Happiness,' 'Virtue,' and other conditions and qualities, men were eager to be shown the easiest and shortest road to happiness itself, and were willing to accept whatever philosophical basis of belief looked most obvious, and easiest to apprehend. But one cannot help reflecting that that explanation of any problem which *looks* easiest and the least metaphysical sometimes proves the most difficult when we come to apply it.

'Now that I have taught what the nature of mind is . . . I will attempt to lay before you a truth which has most weighty bearing on these questions[1]—namely, how there exist what we call images of things, resembling films peeled off from the surface of objects. These images hover to and fro through the air.' Here, mindful of the purpose of his poem, he stops to point out that in these images we have an explanation of the apparitions and ghosts of which we have such a dread, when we actually imagine that the dead have escaped from Acheron, or that it can be possible for anything to survive death. He continues: 'These images are to be called either cast-off films, or, if you will, name such an image a 'rind,' because it bears an appearance and form like to that thing from which it was shed ere it wandered abroad.'[2] These

[1] 'Quod vehementer ad has res attinet' (iv. 33).

[2] iv. 25-52. Lucretius uses either *simulacrum* or *imago* or *effigia* to express the εἴδωλα or τύποι of Epicurus (see Diog. L., x. 46-50). Zeller has said (Eng. trans., p. 402): 'Pictures, too, may strike our senses to which no real objects correspond.' Such pictures, *e.g.*, of a centaur, may be perceived by the mind, but certainly not, in ordinary cases, by the senses, Lucretius holds. Such non-natural complex images, not coming from a *res*, might be formed in the air, but they would not recur often enough to produce vision by the eye. When he says that phantoms of the

images, he seems to add, 'fly off spontaneously and have no sensation.'[1]

Lucretius defends his theory by analogy: How many things do we see discharging part of their substance! Logs emit smoke, the cicadas emit gossamer, new-born calves throw off cauls, the serpent sheds its skin, and so on. '*Since* these cases occur,' he goes on, 'fine images *must* also be emitted from the surface of things: not a tithe of proof can you show why in these cases things should throw off their outer surface, and yet all bodies not possess the power to discharge films which are far finer.' Epicurean logic!

If such things thus discharge their outer coats which can actually be handled, much more may we expect all objects to throw off *very fine films*, which preserve the shape of their originals and are thrown off 'with far more velocity,'[2] since the atoms forming these images are fewer, and lie on the very surface of the things emitting them. The images producing colour, for instance, come from the surface of things; this he illustrates from the amphitheatre:

'This is what happens when orange and red and dark blue awnings are stretched over great theatres, fluttering and waving as they spread across the poles and cross-beams, for then they dye the whole assembly in the seats below, and all the splendid show upon the stage, and the richly attired company of the senators,

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dead are caused by images (iv. 35), he must mean that these are images which have somehow lost their way, and after being long detached from some human form, now vanished from earth, which emitted them, return to meet our sight. This, he implies, is a very rare occurrence.

[1] 'Quin potius noscas rerum simulacra vagari
Multa modis multis nulla vi cassaque sensu.'
iv. 127, 128.

Munro renders: 'The idols are of no force, powerless to excite sensation.' It is impossible to say where these two lines should come in.

[2] iv. 70.

and compel them to dance about in borrowed colours. And the more closely they are shut in all round by the walls of the theatre, the more is everything within bathed in the charm of colour, and laughs gaily in the scantier daylight.'[1] Since sheets of canvas can thus emit colour, so must all other things emit their own images. These images must be exquisitely fine, and cannot be seen singly. They become visible by their constant repetition.[2] Unlike smells, smoke, heat, they do not come from within, and so run no risk of being torn in passing out, since their atoms 'are ready to hand, being stationed in the first rank'—that is to say, on the surface. The reflections in mirrors, too, can only be formed by emitted images of things. In no other way can we explain the similarity of the mirrored picture to the object. Images, he tells us, are reflected from glass because its surface is smooth and hard. Evidently Lucretius finds in mirror-reflection the strongest proof of his theory.

If you wish to learn how fine these images are, think of the organs of the smallest insect: how fine must be the atoms which form its heart or eye! Or of the intense perfume that certain herbs emit: how small must such atoms be! No wonder, then, that single images of such subtle texture are unseen, unfelt.

The number of these images must be enormous. Every existing thing is perpetually sending them off; they are constantly flying away in every direction, one following another with enormous velocity. 'In a moment of time there must be carried away from things images many in number, in many a fashion in all directions round.'[3] Thus, if you place an object opposite a mirror, its image instantly appears. How suddenly, again, does a cloudless sky become overcast with frightful storm-clouds! What a multitude of images must these discharge before they become so speedily visible to us!

[1] iv. 75-83. The senators occupied the orchestra in front.
[2] iv. 106, 107. [3] iv. 165.

The images being of the very finest texture, as soon as ever they touch any rough substance, such as stone or wood, they are torn and broken to pieces. Substances like glass, the pores of which are wide and straight, they can pass through.[1] But when they meet a substance both shining and dense, like a mirror, the polished surface reflects them without injury, and they stream back to us.

The images travel with enormous velocity, since they are of very light atoms; and we observe such things—for example, sunlight—to travel very swiftly. These images, which come from the surface of things, travel far more swiftly than light; coming in instant succession, the one impels the other, so that 'all in a moment they fly through space unspeakable.' A proof is this: Put a vessel with water in the open air, and note how swiftly the heaven is reflected in it, with the stars also, if it be night. 'Do you see now in what a moment of time an image may drop down from the borders of heaven to the borders of earth?'

The logic of the next passage is astounding. 'Again, since a particular object which has been felt by our hands in the dark is recognized to be the same which we have seen in the bright light of day, touch and sight must of necessity both be excited by a cause exactly the same.'

'Necesse est
'Consimili causa tactum visumque moveri.'

'Now, then, if in the dark we handle a square thing, and it makes on us an impression [of squareness], what other square thing will be able to fall on our sense of sight in open day except its image? *Therefore*, the cause of seeing manifestly lies in images, nor can anything be seen without these.'[2]

Lucretius must mean here that feeling and seeing

[1] 'Nisi recta foramina tranant
Qualia sunt vitrei.'
iv. 601.

[2] iv. 230-238.

must be produced in the same way—that is to say, by material contact between the eye and the object. Seeing, therefore, must be a kind of feeling with the eye.

Again, the train of images pushes before it all the air between the object and the eye, and thus that air all glides through our eyes, and brushes the pupils, as it were, and so passes through. In consequence of this we discern how far off each thing is. And the greater the quantity of air which is driven before the images, and the more prolonged the current which brushes our eyes, the more distant each different thing is seen to be. Thus we are able to reckon of distance : 'These processes go on with extreme rapidity, so that at the same moment we perceive what a thing is like and how far distant it is.'[1]

One naturally asks, How can anything so fine as a series of images be able to drive the air before it? Probably because of their enormous velocity. It would seem far simpler to assume that the images are finer than the air, and can fly through it.

Lucretius discusses mirror-reflections at some length. He asks why it is, when we look into a mirror, we see our own image, not on the surface, but apparently inside the mirror and beyond it. Here again the intervening air plays an important part in the explanation. He asks next, why do we see right in a mirror as left, and left as right? It is because the image, on coming against the mirror, is dashed straight out in the opposite direction, like a wet plaster-mask thrown against a post. Again, why do a series of mirrors bring into view all the recesses

[1] iv. 246-253. A German scholar (Schütte, 'Theorie der Sinnesempfindung bei Lucrez,' 1888, p. 9) finds an inconsistency here. He says : 'There is no room for the air within the structure of the eye ; either some reservoir would be required, or some opening in the back of the head through which the air might pass out, taking a longer or shorter period to do so.' There need be no difficulty here. Lucretius conceives all substances to be porous ; images, therefore, might pass in one way and pass out another without hindrance.

of a house? why do mirrors of a certain shape reflect right as right and left as left? and so on.[1]

A German critic writes: 'To me it appears not unfrequently as if Lucretius were not himself so well satisfied with his "demonstration," as if sometimes in the quietest corner of his heart a feeling had waked up which compelled him to escape from the difficulty by renewed asseverations and the most vigorous piling up of *ergo* and *propterea* and *cum* and *quod* and *quapropter*, and all the other available conjunctions of inference.' He is forced to ask, 'What in all the world compels all objects to send forth these images? Did the Epicureans believe that this property was immanent in things and inseparable from them?' Nothing in the whole domain of physics, he objects, points even distantly to any such property as being a necessary attribute of things. 'Such ceaseless emissions could not fail to produce some change in the exterior, and perhaps also in the interior, of things.'[2]

But, in fact, Epicureanism *did* assume a constant growth and loss in the entire substance of every 'thing,' some atoms constantly being added and others constantly passing off. There is no doubt that the whole theory of images, when we apply it to explain the operation of the senses, bristles with difficulties. Lucretius may feel these, but he is not troubled with sceptical doubts. The whole subject of images as treated in book iv. is evidently a first sketch. Even allowing for its enormous difficulties, many points are incompletely dealt with. For instance, the extreme velocity of the images plays an important part which is implied rather than described.

The supposition of 'images' detached from things and floating in the air is a very natural one. It must have seemed not only the simple and obvious, but almost the only way of accounting for such phenomena as the *fata Morgana* (which Lucretius may have seen in the Straits of Messina) or the mirage of hot countries, where

[1] iv. 269-323. [2] Schütte, pp. 8, 9.

water, trees, buildings, are seen in places where they do not exist, and sometimes at a great distance from the actual objects. Thus Lucretius might well speak of the images as 'roaming,' 'wandering about.'[1]

Lucretius goes on to distinguish between the vision of the mind and that of the bodily eye. '*So far as the one resembles the other*, seeing with the mind and seeing with the eyes must be effected in a similar way.'[2] (This sounds cautious, but Lucretius at once assumes the identity of the two processes.) Since we see a lion by its images which strike the eye, you may be sure the mind is moved in a similar way, only it perceives the lion by means of far finer images. This is why we see (in dreams) centaurs and figures like Cerberus or Scylla, since there are some images which do not come from any actual thing (*res*), but which are 'spontaneously produced within the air.' These are sometimes compounded from two different images jostling together.[3] Such images, when they meet, readily unite like cobwebs or pieces of gold-leaf. For instance, the images of a man and a horse: thus we dream of a centaur. Such phantom images, which have not been discharged from any *res*, are distinguished from true images by the fact that the former are constantly altering their form, even as we see clouds do,[4] whereas the true images retain the appearance of the 'thing' which emits them.[5]

'As these images, from their extreme lightness, are borne on with velocity, as I have shown before,[6] any one single subtle image of any kind readily impresses the

[1] 'Vagantur,' iv. 724; also 52, 127, etc. [2] iv. 750 *ff.*

[3] 'Omne genus quoniam passim simulacra feruntur,
Partim sponte sua quæ fiunt aëre in ipso,
Partim quæ variis ab rebus cumque recedunt
Et quæ confiunt ex horum facta figuris
Nam certe ex vivo Centauri non fit imago,' etc.—iv. 735 *ff.*

Epicurus seems to have called such compound images of unreal things συστάσεις (Diog. L., x. 48).

[4] iv. 129-142: an evident addition, not incorporated by the poet.

[5] See iv. 48 (Munro). [6] iv. 176 *ff.*

mind by its single stroke ; for the mind in itself is fine and wondrously nimble.'[1]

> ' Facile *uno* commovet *ictu*
> Quælibet *una* animum nobis subtilis *imago :*
> Tenuis enim mens est et mire mobilis ipsa.'

This statement applies not merely to the unreal compound images, but to all others. Owing to the marvellous nimbleness and fineness of the mind, a single mental image ' by its single stroke ' can cause perception, whereas the bodily eye can only discern a succession of images.

Lucretius goes on to notice some optical illusions : the distant tower which appears to us as round because the images sent out by the sharp corners have lost their form ; ' the impact of their blows never makes its way to our sight because, while the images speed on through much air, the air by repeated buffetings of necessity blunts their stroke.' It is the same with other illusions : the ship on which we are sailing seems to stand still ; the one which is moored seems to move on, while the shore past which we sail seems to be dropping astern ; when the wind is driving clouds across the sky at night, the stars appear to be moving in the opposite direction ; the roof and sides of a colonnade appear to converge ; when we cross a river on horseback and stand fast in the middle, the horse seems to be moving up the stream ; oars under water appear bent and broken.

But in all these cases it is not the senses that mislead us ; it is the mind which draws a false inference. The senses spoke true. ' Many other marvels of this sort do we see, which all seek, as it were, to shake our faith in the senses. All in vain, since the most of these cases deceive us because of the mental suppositions which we ourselves add, so that those things are taken as seen which have not been perceived by the senses. For nothing is harder than to draw the line between manifest facts and uncertainties which the mind, all of itself, straightway adds on.'[2]

[1] iv. 722-748. [2] iv. 462-468.

'Nothing is harder.' But what, then, of the infallibility of the senses?

Suppose that a man asserts that nothing can be known, Lucretius continues—how does he know this? All reasoning is founded on the truth of the senses. Our very conception of truth (*notitia veri*) is derived from them. If a man has no certainty as to objects in the outer world, whence does he get the notion of true and false? Sense must be higher than reason, since it can, in the form of experience, confute reasoning. All the senses are equally true, nor is the same sense more true at one time than it is at another. 'All reasoning would come to nought—nay, man's very life would immediately collapse—unless you dare to trust the senses.'

> 'Non modo enim ratio ruat omnis, vita quoque ipsa
> Concidat extemplo, nisi credere sensibus ausis.'

They alone teach us to avoid precipices and other dangers, and to choose safety. 'Just as in any building, if the workman's plummet or square is untrue, all the walls must be crooked or sloping, slanting forwards or backwards, and must presently fall: so, too, all reasoning must needs prove to you distorted and false if it is founded on senses that are false.'[1] Therefore his conclusion is, 'Whatever has at any time appeared true to each sense is true.'

> 'Proinde quod in quoquest his visum tempore, verumst.'[2]

Epicurus, like our own Lord Bacon, expressed a certain contempt for logic; nor is this wonderful when we consider how much ancient logic was occupied with sophistical, verbal arguments. Because Epicurus rejected formal logic as misleading in its method, he has been treated as ignoring logic altogether. Nominally he reduced logic to 'canonic'—that is, to an inquiry into the 'criteria' or tests of truth. These are 'perceptions,' 'feelings,' and 'mental representations.'[3]

[1] iv. 379-468. [2] iv. 499. [3] προλήψεις.

These last are produced by the repetition of perceptions—*e.g.*, the conception of an apple-tree after seeing many apple-trees. They are mental pictures rather than definitions, and take the place of general notions. Epicurus will have nothing to do with definitions: he considers them misleading, as establishing a fictitious quasi-independent reality between things and thoughts. 'To him a word existed only as the symbol of a mental image,'[1] and must carry with it a clear and distinct picture of the thing. To these tests, it is said, the Epicureans added a fourth.[2] Lucretius refers briefly to this last when he says that 'the mind's spontaneous out-reaching flies on, seeking to realize the nature of infinite space beyond the world, and what it contains.'[3] Various passages of Epicurus confirm that statement. It appears to mean that the mind can make a spontaneous effort to realize by imagination what is not seen, and that such impressions are to be accepted if sense does not testify against them.[4] Epicurus lays down the rule that we ought to proceed from known facts to search for the unknown,[5] and in his science he continually acts on this. Even though he laid down no definite theory of it, there is no question that Epicurus took a deep interest in all inductive logic. One of the treatises of Philodemus unearthed at Herculaneum deals with the subject of inductive reasoning.[6] The treatise, which has many gaps, is directed

[1] Wallace, 'Epicureanism,' p. 222.

[2] *οἱ δ' Ἐπικούρειοι καὶ τὰς φανταστικὰς ἐπιβολὰς τῆς διανοίας*—literally, 'the imaginative efforts (or 'reachings forth') of the mind' (Diog. L., x. 31).

[3] 'Animi jactus liber quo pervolet ipse' (ii. 1047); compare l. 740: 'animi injectus.' Compare Cic., 'De Nat. D.,' i. 54: 'Se iniciens animus'; also of the mind attempting to realize infinite space.

[4] Diog. L., x. 34, 51, 62. See Wallace, pp. 222-224; Tohte, 'Epikur's Kritorien der Wahrheit,' 1874; and Giussani, vol. i., 171 *ff.*

[5] Diog. L., x. 33.

[6] *περὶ σημείων καὶ σημειώσεων*, in Gomperz's 'Herkulanische Studien,' 1865, part i. See also Bahnsch's pamphlet on the treatise, 1879.

against the Stoics, who refused to admit anything but deductive reasoning. Philodemus requires that different individuals of the same kind be examined in order to discover those features which are constant. These features may then be ascribed to other individuals of the same kind. Beyond question, Epicureans did grasp the principle of 'imperfect induction' and insist upon its importance. But they did not themselves apply this valuable instrument to make advance in science.

Lucretius's theory of images is beset with difficulties great and small. One cannot help asking, How do these images produce sight? They enter the pores, the *viæ oculorum*,[1] but *why do we see?* Both Epicurus and Lucretius ignore this question. Their formula would seem to be, 'An image + the impact of that image on the eye = vision.' But this is not all. As we shall see,[2] in all acts of vision Lucretius presupposes the co-operation of the Will as deciding whether to receive any given image or not. What we do not choose to see, he asserts, we do not see. But where there is Free-will, Mind and Consciousness are also present. He forgets this. Wallace has said truly, 'Epicurus almost ignores the ego or conscious self. Each of us is an *object* of sensitive and intellectual vision; of the other fact, that each is a *subject*, he says nothing.'[3]

And yet Epicurus stoutly defends Free-will!

Wallace contrasts the Stoic and Epicurean schools with those of Plato and Aristotle, and remarks regarding the former that the main question raised in them was, 'How can we know when our ideas are true and represent objective fact? Where is reality to be found? . . . Epicurus and Zeno attempted to find this principle of reality which was missed by Plato and Aristotle. Reality, *they* declared, must be body, and the evidence for reality must be found in the senses. . . . What our senses tell us, what all feeling vouches for, that, according to him, is true and real. But all feelings or sensations have not

[1] iv. 351. [2] See p. 256. [3] 'Epicureanism,' p. 237.

this characteristic. The voice of sensation or feeling, if it is to be accepted as a witness to truth and reality, must be clear and distinct, palpable, tangible, and unmistakable.'[1]

Thus Epicurus lays down 'clear and distinct consciousness'[2] as the final court of appeal.

Lucretius says: 'Whatever impression we at any time receive from each sense is true.' But these impressions differ for individuals according to age, temperament, variations of health, etc. Are, then, the different perceptions which different persons have of the same thing at the same moment all equally true? The logical consequence would be to say, 'Each perception is true for each man,' and this brings us to Protagoras, with his doctrine that 'man is the measure of all things,' which means that there is no standard of truth, but that decisions of truth or error depend on the judgment of the individual. That Epicurus does not admit this signifies nothing.

When we ask, 'How are we to know a true image from one which is not accurate?' all that Epicurus can answer is that the wise man knows how to distinguish a mere *impression* from the actual fact.[3] But this, as Zeller truly says, is to admit that 'sensation does not show us things as they really are, but only as they happen to be in relation to us.'

Lucretius goes on to discuss the other senses. They, too, are a kind of feeling. Sound is due to atoms striking the ear. Here again his theory entangles him in a difficulty. A word, as soon as it is uttered, breaks up, he explains, into a number of words, which can therefore be heard by a number of people at the same moment! In taste, again, the flavour is pressed out from the food,

[1] 'Epicureanism,' p. 214-216.

[2] ἐνάργεια. Epicurus sometimes uses the term ἀίσθησις, sometimes φαντασία, for 'sensation.' Compare τὴν φαντασίαν ἣν καὶ ἐνάργειαν καλεῖ διὰ παντὸς ἀληθῆ φήσιν ὑπάρχειν (Sextus Empiricus, vii. 203, and Diog. L., x. 52).

[3] Cicero, 'Academica,' ii. 45: 'Epicurus dicit sapientis esse opinionem a perspicuitate (ἐνάργεια) sejungere.'

and passes into the pores of the tongue, being pleasant or the contrary according as the atoms are smooth or rough. Smell, again, is due to the emanations streaming from things : these travel far slower than sound or than the images causing sight.[1]

Curiously, Lucretius says nothing of a sense of touch. Epicureans regarded this, not as an independent sense, but as an auxiliary of the other four, and present in each.

According to the emanation theory, as we now see, the air around us is crowded with millions of images along with less definite emanations—images ever passing and crossing each other in every direction, some swifter, some slower, in infinite complexity of movement which yet is not confusion, so unsubstantial yet preserving their form, as they speed on their way to each sense of ours like ships each to its own haven. Their texture is exceedingly fine, but, infinitely finer and more subtle, the mind-images traverse these in every direction, while, subtlest and doubtless swiftest of all, the majestic images of the gods come flying through all the rest in never-ceasing flow.

All these images are atomic. We now realize how enormously minute Lucretius conceives his atoms to be.

The poet goes on to describe how Will moves the human body. Before the mind wills anything, an image must strike it—*e.g.*, an image of walking before we walk. 'First of all, images of walking present themselves to our mind and strike on it, as we have already said. Thence arises the Will, for no one begins to do anything until the mind has first determined what it wills. From the fact that it determinates this, there must exist an image of that thing.'[2] Next, when once the mind has

[1] iv. 522-705.

[2] 'Dico animo nostro primum simulacra meandi
Accidere atque animum pulsare, ut diximus ante.
Inde voluntas fit ; neque enim facere incipit ullam
Rem quisquam, quam mens providit quid velit ante.
Id quod providet, illius rei constat imago.'
iv. 881.

willed to walk, at once the mind (*animus*) strikes the soul (*anima*), which is scattered all over the body; next the soul impels the various members of the body, and 'so, by degrees, the whole mass is impelled and set in motion.'[1]

If, then, we will because an image strikes the mind, is not man at the mercy of casual images? How reconcile this with Free-will?

Lucretius is sorely put to it to answer this question, but he struggles valiantly. How is it, he asks, that we are able to call up before the mind at once whatever we may wish to think of—a crowded assembly, a procession, a battle, or so on—and this while another person close beside us has his mind busy with things quite different? It is because in one unit of time, though it be only long enough to speak a single word, reason tells us that many times are latent during which all these different images might appear to us. (The air beside us is full of images of every kind. During the many subdivisions of a second a vast number can glide before the mind. From these the mind selects whichever it prefers.) 'Because these images are so fine, the mind can see distinctly only those which it strains itself to see; therefore all the others are lost except those only for which it has made itself ready.' Just as the eyes must at times strain themselves before they can see things which are minute or of fine texture, so the mind must exert itself in order to discern these subtle images (of which, be it remembered, one alone is enough to produce a mental picture). And when, in a dream, we see figures move, this is because the mind, having seen one given image, 'has prepared itself' to perceive the same object in other attitudes.

(If that object be living, we shall probably expect to see it in motion. Lucretius seems to mean that, if the image of a horse be seen by the mind, in its neighbourhood are likely to be other images—some, for instance, of the same horse galloping. All these have come from an actual horse somewhere existing.) It is nothing strange

[1] iv. 794-804.

if, while so many images fleet round us, our mind perceives only one, for when our attention is absorbed even our eyes fail to see what is being done immediately before them. Therefore, if in dreams we see human figures moving or dancing before us, it is because 'many latent times are contained in one moment,' and thus, 'at any time you please, all the several images [of such figures] are at hand ready prepared in each several place.'

When a dream figure moves, it is not one and the same image we see, but several in succession: the 'first image has gone, and another has been born in another posture, while, apparently, the former one has altered its attitude. This, remember, you must assume to take place with exceeding speed. So great is the velocity, so great the store of images, so great, in any one moment of time that sense can seize, is the store of particles out of which the supply can go on.'[1]

Only imagine the multiform and often utterly disconnected changes which occur in a dream! In this desperate attempt the absurdity of Lucretius's theory reaches its climax. This part of the poem is most evidently unfinished.[2] It is precisely thus that an author would deal with a specially difficult part of his subject, sketching it out, but unable to decide in some cases as to the arrangement of his material, and feeling it premature as yet to express it in finished form. Sometimes there is even a lack of Lucretius's usual firmness and precision of language.[3] There are many paragraphs in

[1] 'Tanta est mobilitas et rerum copia tanta
Tantaque sensibili quovis est tempore in uno
Copia particularum ut possit suppeditare.'
iv. 774-776.

'Rerum' must here mean images, and 'particularum' the constant flux of atoms which forms the images. See also ll. 794-798.

[2] The first editor or copyist must not be blamed for intentional transposition of what he found added in the margin or elsewhere. See Munro, 'Introduction,' pp. 28-30, and his notes on ii. 165-183, and iv. 777-817. We find the same question sometimes discussed more than once, and quite independently.

[3] See the preceding note.

this book not in full connection with what precedes and follows, and plainly out of their place, being subsequent additions by the poet which he did not live to incorporate with the rest. But there appears to me no sign whatever of failing faculty. Rather do we admire the vigour with which Lucretius defends the impossible because it is part of his system.

Lucretius goes on to explain the cause of sleep, and passes on to dreams : these generally turn on the business or pleasure of our waking hours. Thus lawyers fancy they plead causes, generals that they engage in battle, sailors that they fight the storms.[1] 'I too,' he says, 'fancy that I am intent on my task, and am investigating the nature of things, and when found, am setting it forth in my native tongue.' But Lucretius does not explain *how* dreams are produced by images from without. He only offers one suggestion. As an illustration he refers to the strain on the mind caused by constantly watching games for many days, owing to which, after the various contests are over, we fancy that we still behold the spectacle. This is because 'after the games are over, there still remain wide open the passages in the mind through which the same images of things may enter.'[2]

He closes with an elaborate physiological explanation of the passion of love. Love comes from natural causes : no Deity inspires it from above. He treats it entirely as a physical passion, and, on its ethical side, chiefly as a disturbing element in life, to be avoided or held in check. As an ennobling power he ignores it.

[1] We may compare Mercutio's famous speech on dreams, and also Chaucer's lines :

> 'The wearie hunter sleeping in his bedde
> To woode agen his mind goeth anone ;
> The judge dremeth how his plees he spedde ;
> The carter dremeth how his cartes goon ;
> The riche of gold, the knight fights with his fone ;
> The sicke mette he drinketh of the tonne ;
> The lover mette he hath his lady wonne.'
>
> *The Assembly of Foules.*

We may be certain that Chaucer at least knew nothing of Lucretius.

[2] iv. 962 *ff.*

CHAPTER XII

THE EPICUREAN GODS

ONE great aim of Lucretius's poem is to prove that 'all things are done without the hand of the Gods,' that they neither have nor can have any control over the world or over men. Lucretius is most firmly convinced that there are no Divine presences at work anywhere about us. What, then, are we to think when, having mastered his whole system, we return to the opening lines of his poem, the marvellous invocation to Venus?

'O mother of our Roman race, Thou delight of men and Gods, O kind Venus, who beneath the gliding signs of heaven fillest with Thy presence the ship-bearing sea, the corn-bearing lands, since through Thee every kind of living things is conceived, and rises up and beholds the light of the sun. Before Thee, O Goddess, flee away the winds and the clouds of heaven, they flee before Thee and Thy coming; for Thee the earth, rich in wondrous works, makes to spring flowers that smell sweet; for Thee the glancing plains of the sea do laugh, and the calmed heaven shines with lavish light. For, as soon as the sky opens wider and lifts itself up and displays its spring-tide aspect,[1] while the prison of Favonius is unlocked, and his life-begetting breath blows strong from the west—

[1] 'Nam simulac species patefactast verna diei.'

It seems impossible to render '*patefacta* species.' ''Tis advertised in the sky that spring has come.' When, as often happens, the mere ashes of the flower are left in the crucible of the translator, it is only the poet who can recreate it.

The line reminds us of Maurice Guérin's words, 'Ce ciel de Bretagne, toujours nuageux et si bas qu'il semble vouloir vous écraser, mais au retour du printemps le ciel se hausse.'

then, O Goddess, the fowls of the air, smitten to the heart by Thy might, are the first to proclaim Thee and Thy entrance in ; then the herds grow wild, and bound over the glad pastures and swim across the rushing rivers ; so enthralled by Thy charm is each, that it follows Thee whither Thou goest to lead it on. Yea, amid seas and mountains and sweeping rivers and leafy homes of birds and green plains, Thou inspirest fond love into the hearts of all, and constrainest with passionate desire, each after his kind, to beget a new race.

'Since Thou only dost control the nature of things, and without Thee no living creature rises up into the bright shores of light,[1] without Thee nothing grows to be glad or lovely, I crave to have Thee for my helpmate in writing the verses which I attempt to endite about this, the nature of things, for my own good friend, the son of the Memmii—him whom Thou, O Goddess, hast willed to have no peer, and to be gifted with every grace for every need. Wherefore do thou, O Goddess, all the more grant to my words a never-dying charm. Oh, do Thou cause that meanwhile the cruel works of warfaring may be lulled to rest o'er every sea and land, for Thou alone canst bless mankind with calm and peace, since Mars, the lord of battle, rules over all the savage tasks of war—Mars who often casts himself into Thy lap, vanquished and subdued by love's undying wound, and so with shapely neck[2] cast back he gazes up at Thee, and feeds with love his greedy sight, gazing, O Goddess, with longing eyes on Thee, and as backward he reclines his breath hangs still on Thy lips. While he reposes on Thy sacred body, O Goddess, do Thou shed Thy sweet Being

[1] 'Luminis oras'—'a favourite phrase by which Lucretius denotes the line or border which divides light from darkness, being from not-being' (Munro).

[2] 'Her throte, as I have now memoyre,
Semed as a rounde toure of ivoyre,
Of goode gretenesse and nought too grete.'

This is exactly Lucretius's 'tereti cervice.' (From Chaucer's picture of Blanche of Lancaster in 'The Boke of the Duchesse.')

round him leaning from above,[1] and pour from Thy lips sweet discourse, and crave, O glorious One, untroubled peace for the Romans. For neither can I, in our country's day of trouble, apply my whole heart to my task with mind undisturbed, nor can the illustrious scion of the Memmii in times like these be slack to play his part for saving of the State.'[2]

Here, at the portal of the poem, as it were, stands an apparition, and a lovely one—the figure of Venus joyous and full of life.[3] We are utterly startled at the sight, for how comes this beautiful presence here in a world which has come into being in some unexplained way out of scraps of dead matter—a world which no Divine power has ever fashioned, no spirit of life ever dwelt in or breathed upon ? Here, where the realm of death is and none but dead things should be seen, this is an apparition indeed !

All lovers of Lucretius have been perplexed and puzzled by the apparent inconsistency of this opening of a poem, one chief feature of which is to prove that on earth 'all things are done without the hand of the Gods.' We might assume it to be a mere imitation of ancient poets who invoked the muse to their aid, but there is something in the tone of it which has forbidden almost all students of the poet to view it as such. And yet, if it be an actual prayer for Divine aid, how can that be reconciled with Lucretius's system ? One critic, a man of genius, Robert Buchanan, has solved the question very simply.[4]

[1] 'Circumfusa' refers more to the spiritual influence of the Goddess, breathing peace, than to the actual embrace. Mars, looking up into the face of Venus, catches her arms and draws her nearer, so that her face stoops over his.

[2] This seems to imply that Memmius at this time had no leisure for philosophy. Probably he was at heart as indifferent to the claims of Epicurus as to those of his own country. Can Lucretius mean by these words to remind Memmius that much is expected of him ?

[3] I find that the same figure, a very natural one, has been used by Montée ('Étude sur Lucrèce,' 1860).

[4] 'A Note on Lucretius' ('A Look round Literature,' p. 101, 1887).

According to him, this invocation is merely 'in the highest sense a parody, because it is the mere imitative conjuration of a Divine entity in whom the singer has no faith.' Thus the knot is loosed in a very easy way. But could we feel nothing too earnest for a parody in the passage, apart from this entirely, Mr. Buchanan's verdict that Lucretius has no faith in any Divine existence totally contradicts the judgment of those who have studied both Lucretius and Epicureanism most thoroughly. There is, as we shall shortly see, unquestionable evidence that both Lucretius and Epicurus firmly believed that Gods of a kind did exist.

Another opinion, partly similar to Mr. Buchanan's, is expressed by Lange in his justly well-known 'History of Materialism.' 'Lucretius invokes the Gods, and at the same time combats religion,' says Lange, 'while yet it is impossible for us to discover in his system even a shadow of doubt or contradiction in respect of this.' The meaning of these words it is impossible to understand till we turn to his chapter on Epicurus,[1] where we find the following explanation: 'There can be no doubt that Epicurus in reality reverenced the conception of the Gods as being an element of a noble human origin, and did not reverence the Gods themselves as externally existing beings.' 'He worshipped the Gods on account of their perfection; he could do this, no matter whether this perfection manifests itself in their external actings, *or whether it unfolds itself solely as an ideal in our thoughts*, and it is the latter which appears to have been his standpoint.' 'Epicurus never came into conflict with religion, for he worshipped the Gods sedulously (*fleissig*) in the customary way, yet without on this account pretending a view of them which was not his.'

We must not think that his worship of the Gods was a mere pretence in order to keep himself safe with the mass of the people and with the dangerous priesthood; it came truly from the heart, since, in fact, his Deities

[1] 'Geschichte des Materialismus,' Erster Abschnit, c. 4, 1873.

who live without care or suffering represented the ideal of his philosophy, as it were, embodied. It was at the utmost a concession to the existing order of things, if Epicurus thus complied with forms of worship which he must have thought at the least arbitrary or indifferent.' The peculiar 'consistency' and honesty which lay in being entirely a disbeliever in the Gods' existence—for such Lange declares him to have been—and at the same time 'sedulously' going through the ordinary forms of pagan worship, is very hard to understand. Indeed, the morality of this passage appears absolutely incomprehensible. According to Lange, Lucretius does not believe in the existence of Venus. She is no reality—she is but the merest picture; yet he can pray to her 'without even a shadow of inconsistency,' for is she not an 'embodied ideal of his philosophy'? Such mock worship of a popular Deity (under the reservation that all the time it implied the worship of something else—namely, of an 'ideal' which did not objectively exist) deserves to be called the most contemptible insincerity possible. The notion of a parody is repulsive enough, but such a 'concession' as this would be hideous.[1]

The Epicurean Gods are, indeed, so superfluous for Epicurus's atomic explanation of the world, that some have thought, with Lange, that he simply professed a belief in them for appearance' sake; that as the profession of atheism would have made his system too unpopular (would have been 'dangerous,' as Lange asserts), he nominally retained the ancient Deities while depriving them of all their power. Even in his own day certain philosophers—for example, Posidonius—saw in these do-nothing Gods a mere shallow screen for atheism.[2]

[1] Other explanations by Martha and Bockemüller are given in the Appendix.

[2] One passage alone might seem to imply the opposite. Lucretius explains at length that Cybele is but the earth personified: 'If anyone thinks fit to be so foolish, he may call the sea Neptune, corn Ceres, and wine Bacchus, but he must remember all the time that these are but names applied to things without

There is, however, unquestionable evidence that both Epicurus and Lucretius did firmly believe in the existence of these Deities, strange as they are. Lucretius, indeed, promises more than once to prove 'at full length' what their nature is.[1]

Epicurus found that all the races of mankind, everywhere without exception, believe that the Gods exist. Such a general conception common to mankind he calls a 'prenotion.'[2] (This 'prenotion,' be it remembered, is, strictly speaking, rather a clear mental picture of certain Divine Beings than a general idea in the mind about their nature.[3]) According to his system, every 'prenotion' is formed by an accumulation of sensations. Now, according to him, every sensation is true, and has some existing reality which answers to it.[4] Therefore it follows that every general idea must have a foundation of truth.[5] Epicurus, says Cicero, was the first who founded the idea of the existence of the Gods on the general belief of mankind, and he sought to show that this idea is not due to education or custom or law, but is innate in our minds, imprinted on them by Nature.[6] This innate preconception of the Gods is derived from those images which

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life.' Yet in this passage Lucretius by no means rejects an actual Neptune or Ceres or Bacchus. It is merely the connection of these Deities with the sea, corn, or wine which he denies. Lange's opinion seems based on a misunderstanding of this passage (Lucretius, ii. 600-660).

[1] See v. 155 and i. 54.

[2] *προλῆψις*, also called by Epicurus *κοινὴ νόησις*, as in his letter to Menœceus (*ἡ κοινὴ τοῦ θεοῦ νόησις*. Diog. L., x. 123).

[3] See Chapter XI.

[4] Epicurus did not mean by this that we are never mistaken. The error comes from the mental inference which our reason adds to the sensible impressions in attempting to interpret them. Epicurus treated this subject in his book, 'The Rule, or On the Grounds of Judgment' (*περὶ κριτηρίου ἢ Κανών*). This Epicurean distinction is well worded by Tertullian ('De Anima,' c. 17): 'Sensus non mentitur sed opinio; sensus enim patitur, non opinatur.'

[5] Cicero, 'De Natura Deorum,' i., §§ 42-45.

[6] *Ibid.*, § 43.

constantly and persistently keep coming to mankind both waking and in sleep—visions of glorious forms, more beautiful, greater in stature, and mightier than men.[1]

Further, Epicurus held that Nature has also implanted in us the conviction that the Gods are happy and immortal; the glorious beauty of their forms and the never-failing succession of their images produce the conviction of their bliss and their immortality.[2] Since these images never appear to men in any other form than the human one, the Gods must be held to be in the likeness of men. Even did our 'first notions' not tell us this, our reason would compel us to admit it, since the most excellent nature must also be the most beautiful, and nothing can be more beautiful than the human form. Besides, 'since the Gods are admitted to be perfectly happy, since no one can be happy without virtue, nor yet can virtue exist without reason, while reason can reside in none but the human form, we must admit that the Gods are fashioned like men.' So argues the Epicurean spokesman in Cicero.[3] 'I have never seen,' said Epicurus, 'a reasoning and determining soul in any form but the human.'[4]

[1] Lucretius points out that there are certain images which do not come from actual objects, but are 'spontaneously begotten' in the air, being formed by the union of several fleeting images borne from different things and wandering about. Such images, however, unlike the images of the Gods, which always recur in the same form, are very changeable and inconstant (book iv., 129-142, 722-748).

[2] Lucr., v. 1161-1194.

[3] 'De Natura Deorum, i., § 47, 48.

[4] The saying is attributed to Epicurus by Cotta in 'De Natura Deorum,' i. 87. In Mr. Mayor's valuable commentary on this book the whole subject of Epicurean theology is discussed with much acuteness. Mr. Mayor examines carefully the resemblances between this book of Cicero's and Philodemus's treatise 'On Piety,' and concludes that 'for the historical section certainly, and possibly for the expository section also' (*i.e.*, 'De Natura Deorum,' i. §§ 25-56) ,both may have copied from a common original, 'most likely Zeno, the teacher of both Philodemus and Cicero.' The work of Philodemus was found as a charred roll

Lucretius explains as follows how men have come to believe in the Gods and to fear them.:

'Now, what is the cause that has spread broadcast over great nations the worship of the majesty of the Gods, and filled cities with altars, and has caused solemn rites to be performed at their appointed times—rites which at this present day flourish in pomp of circumstance and place—what is the cause of that shuddering awe implanted in the human heart which at this very day is raising up new shrines of the Gods over the whole world, and compelling men to crowd them on festal days—all this is not so hard to give reason for.

For even then, in sooth, the races of mortal folk would see in waking mind forms of Gods, surpassing common forms, and in sleep would see them of still more marvellous growth of body. To these, then, they would attribute consciousness, for the reason that they seemed to move their limbs and to utter lordly words such as became their glorious aspect and their abounding strength; and they would attribute to them life without an end, because their face was ever present and their form did not change; yes, and apart from this, because they believed that those who wielded such strength could not lightly be overpowered by any assault. And therefore they would believe them to enjoy a lot of surpassing bliss because not one of them was ever troubled by the fear of death; and, at the same time, because in their sleep men would see them work many wondrous things, and yet for all their toil suffer no weariness. Besides, men saw the system of the heaven and the changing seasons of the year revolve in a fixed round, and when they could not find out by what causes this took place, therefore

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along with many other Epicurean treatises in the library of a house at Herculaneum, supposed to have belonged to Piso, the well-known Epicurean, whose intimate friend and teacher Philodemus was. Philodemus was a native of the Greek city of Gadara, on the Sea of Galilee. The treatise is published by Gomperz ('Herkulanische Studien,' vol. ii., Leipzig, 1866).

they would take refuge in handing over all things to the Gods, and in supposing the course of all things to be directed by their nod. And in heaven did they place the home and seats of the Gods, because through the heaven are seen to roll the darkness and the light, the night and the moon, the moon, day, night, and the stern stars and signs that shine in the night, and the meteor-torches of the heaven that wander o'er the dark and also flying flames, clouds, sun, rains, snow, winds, thunder-bolts, hail, and rapid rollings and loud roar of the dread thunder-crash.'[1]

'O hapless was the race of human kind,' the poet goes on, 'when they attributed such acts to the Gods—and not only this, but coupled with these acts bitter Divine wrath as prompting them—what sorrows did they they beget for themselves, what calamities for us, what tears for our children's children! True,' he admits, 'when we look up to the sun and moon and stars, and note the regularity of their motion, we can hardly avoid the thought that it can only be some infinite Divine power which can wheel the bright stars in their varied motion.' Again, who does not dread the thunder lest it be a voice threatening Divine vengeance? When the mighty tempest sweeps the navies of Rome over the sea like so many nutshells, does not the admiral pray the Gods, though all in vain, to still the storm? Or, when earth rocks beneath our feet and cities fall, what wonder that before such appearances of some hidden power men abase themselves,

[1] 'In cæloque deum sedes et templa locarunt,
Per cælum quia nox et luna videtur,
Luna, dies et nox et noctis signa severa
Noctivagæque faces cæli flammæque volantes,
Nubila, sol, imbres, nix, venti, fulmina, grando
Et rapidi fremitus et murmura magna minarum.'

This passage has a stern music of its own, organic to the thought, so that the mere cadence of these lines chiming in the ear without the words brings up the awe of the night, set with great stars, or with sudden meteors blazing across the dark like the wild sport of some awful power that recks not of man.

and assume that the Gods have might to control the whole of Nature ?[1]

Long ago Democritus had said : ' The men of old, beholding the phenomena of the heavens, such as thunder and lightning, and thunderbolts and comets, and the eclipses of sun and moon, were stricken with fear, imagining that the Gods are the cause of these things.'[2] In his very peculiar theology, just as in every other field, Epicurus is so much influenced by Democritus that some account of Democritus's teaching about the Gods is necessary.

Democritus rejected the popular religion of his day ; he regarded its Deities as allegorizations—Zeus, for instance, as signifying the upper air, Athena wisdom, and so on. These abstractions had come in time to be regarded as actual personal beings. ' Few wise men,' he says, ' stretch up their hands to the region which we now call " the air," and invoke it as Zeus, or believe that He knows everything, and can give and take away all things, and is king of all.'[3] This, however, he holds, cannot explain away the facts of the popular belief. According to his theory of knowledge, which assumes every thought to be due to external impressions, the universal belief of human beings in the Gods must also be derived from external impressions. There must dwell in the upper air beings resembling man in form, but greater and mightier and more enduring than he. From these beings ' images ' are ever streaming forth which pass through space and strike upon our senses, sometimes in sleep, sometimes even waking, and thus produce in us a belief in the Gods. ' Democritus says that certain " images " draw near to men, and of these some are beneficent and others evil-working, for which reason, moreover, he prays (or " wishes ") that he may meet with fortunate images. Now, these images are great, and vastly large, and hard to destroy, though not inde-

[1] v. 1161-1240. [2] Sextus Empiricus, ix. 24.
[3] See Mullach's Democritus, ' Fragmenta Physica,' 5.

structible, and they give intimations to men of things about to come by appearing to the eye and uttering voices.'[1] Cicero calls these 'eidola' of Democritus 'living images,' and says that certain of them are 'vast, so large as to embrace the whole world from without.' These Deities dwell in the infinite space which encompasses the world, and hence, out of the infinite,[2] their images come to us. Democritus did not, like Epicurus, think it necessary to place his Gods in the defined and sheltered spaces between the worlds. In some strange way he seems to have conceived these vast Divine phantoms, fleeting through the air and entering the human mind, as having an independent life of their own, apart from the Beings from whom they emanate. Democritus's definition of the Divine is somewhat wavering. At one time he applies the name of Deities to these images in their transit, at another to the Beings which emit them, at another to the human intellect, at another to the 'elements of mind which exist in the universe,'[3] these elements being the fire-atoms which are the finest and smoothest of all the atoms, and of which the soul also is composed.[4]

[1] Sextus Empiricus, ix., § 19.

[2] ἐν τῷ περιέχοντι. Sextus Empiricus, x., § 42; pseudo-Plutarch, 'De Plac. Phil.,' c. 1.

[3] 'Tum enim censet imagines divinitate præditas inesse in universitate rerum, tum principia mentis quæ sint in eodem universo deos esse dicit, tum animantes imagines quæ vel prodesse nobis soleant vel nocere, tum ingentes quasdem imagines tantasque ut universum mundum complectantur extrinsecus' (Many MSS. read 'mentes [or 'mentesque'] quæ') (Cicero, 'De Natura Deorum,' i., § 120). It is not necessary to suppose that Cotta, the Academic speaker, is exaggerating here. We may compare the epithets ὑπερμεγέθη and ὑπερφυῆ applied to the εἰδωλά by Sextus (ix. 19, 42). The Epicurean Velleius speaks to the same effect: 'Tum imagines earumque circuitus in deorum numero refert, tum illam naturam quæ imagines fundat ac mittat, tum scientiam intelligentiamque nostram' ('De Natura Deorum,' i., § 29).

[4] As this element of fire or vital warmth is supposed by Democritus to be spread through all Nature, we can understand how

Not only do these images carry to us the outward form and aspect of the Gods, but their rapid flow even reproduces for us their looks, gestures, and words. Both Lucretius and the Epicurean spokesman in Cicero speak pointedly of these Divine visions as coming in waking hours as well as during sleep.[1] Considerably later we find even a man like Celsus convinced that the Gods do appear in visible form to the human eye. Such visions might be seen by those who were fasting in preparation for some religious rite ; we find them frequently recurring in the history of the early Christian saints and hermits. Guyau has pointed out that, among the Greeks and Romans, such fantastic visions must have been much more common than among ourselves. 'The ancients,' he says, 'lived in the midst of their Gods ; everywhere statues and images recalled their forms, and rendered them present to the eyes as to the mind ; it is in no wise astonishing that, during solitude or in sleep, all these forms embellished by sculpture should come to haunt the imagination of men. In our days the pretended vision of God presupposes two things—the diseased mind must by a twofold effort lend to the Divinity a sensible form, and then cause this form to appear before the eyes. In antiquity the first of these two intellectual efforts was accomplished beforehand. Every God had his form, and with this image the thought of him was

late writers like Cyril make the inference that Democritus regarded the Deity as 'Reason and the Soul of the world, consisting of spherical fire-atoms.' Zeller says that, when Democritus speaks of a Divine element pervading the world, he does not mean either a personal being or one force moving the universe like Plato's world-soul, but merely that form of matter which is 'the substance of souls' (vol. ii., p. 263, Eng. trans.). This is probable ; it is difficult to speak positively.

[1] 'Quæ enim forma alia occurrit unquam aut vigilanti cuiquam aut dormienti' (Cicero, *ibid.*, § 46).

'Egregias animo facies vigilanti videbant
Et magis in somnis mirando corporis auctu.'
Lucr., v. 1170, 1171.

associated. So the smallest effort might suffice to recall at the same time the thought of a Deity and his image, and from this point of view this kind of hallucination was less exceptional, less abnormal, than in our own times. Let us add, in order to make Epicurus's theory properly understood, that in antiquity the phenomena of hallucination had not been explained ; at that time men could with difficulty distinguish between hallucination and natural sensation.'[1]

Epicurus holds that the ' general notion ' in the minds of all men is sufficient proof of the eternity and the blessedness of the Gods. Mankind cannot conceive of Deity apart from these attributes ; but how is Epicurus justified in cutting away the notion of their omnipotence, or at least of their power for good and evil—a notion which is, as unmistakably as the two former, bound up with the ordinary belief in the Godhead in every race and nation ?

Epicurus is equal to the difficulty. It is necessary for us, he insisted, to separate our general conception of the Gods from any false notion[2] which may have become associated with it. We do wrong to imagine that they interfere in the affairs of men ; this is a mere false inference of our own due to our ignorance of the causes of natural phenomena, such as the motions of the heavenly bodies, thunderstorms, earthquake, and tempest, all of which are terror-striking, and make man feel his littleness, and assume that Gods alone can have power adequate to produce such results.[3]

Let us try to understand this doctrine of the Divine inaction from the Epicurean standpoint. In the first place, fixed laws of Nature, as Epicurus believes he has demonstrated, do not allow of such interferences ; they simply leave no room for the Gods to act in. Besides this, Epicureans, as we have seen,[4] felt a strong repugnance to the idea of Divine action in Nature ; in particular,

[1] ' La Morale d'Épicure,' p. 175.
[2] ὑπολῆψις.
[3] Lucr., v. 1194-1240 ; vi. 43-91.
[4] See Chapter VI.

they insisted justly that the method of Nature is not like that of man. With easy but unscrupulous ridicule they ignored any notion of Divine action, except the childish one of a man-like artificer toiling with hammer and anvil. In this way, moreover, the Gods could be freed from all responsibility for the terrible imperfections and injustices of this world, on which Lucretius dwells at such length.[1] Further, and this last argument was to an Epicurean a weighty one, they held that the task of ordering the affairs of men or interfering with Nature was utterly inconsistent with the perfect happiness and tranquillity which are attributes of the Divine Being.

In the second sentence of his catechism of cardinal truths, Epicurus tells us: 'The blessed and immortal Nature neither hath troubled itself nor doth it cause trouble to another, so that it feels neither anger nor favour, for all such emotions imply weakness.' Lucretius sets forth the doctrine thus:

'For of necessity the Gods must ever enjoy immortality along with supreme repose, being far removed and withdrawn from our concerns, since, being exempt from every pain, exempt from all dangers, mighty in their own resources, needing nought from us, they are neither gained over by our good deserts, nor are they moved by anger.'[2]

The doctrine is based upon the Epicurean definition of happiness as consisting in the absence of trouble. For the Gods either to reward virtue or to punish any offence against themselves would involve 'taking trouble.' Did anyone else ever associate such a notion with Deity? 'The word "trouble,"' says Mayor, 'is unmeaning in reference to our idea of God; if we suppose Him to be Almighty, thought and action are as easy to Him as breathing to us.'[3] Nor does the fallacy stop here. Epicurus goes on to confuse the approval of good and hatred of evil which are necessary attributes of a righteous

[1] Book v., 199 *ff.* [2] Book ii., 646-651.
[3] See his note on 'De Natura Deorum,' i., § 45.

Gassendi brings forward his suggestion of a gradual imperceptible progress from molecules containing the 'rudiments of sensation' up to complete living consciousness in the most cautious manner, as if he realized its bearing as a materialistic argument.[1] This theory of Gassendi's and Guyau's doctrine of 'Spontaneity' are both the outcome of a revival of Epicurus's scientific system in the sixteenth and nineteenth centuries respectively. The tree of Epicureanism, which has even in modern times twice broken out into fresh bud and leaf, and put forth on French soil two such remarkable offshoots, cannot even yet be called dead.

[1] 'Propono seu potius balbutiens attingo, ut quatenus licet, insinuem progressum quo res videntur evadere ex insensilibus sensiles' (vol. i., p. 270). See also his 'Disquisitio Metaphysica' on Descartes, where he says: 'You observe that you think. Certainly that cannot be denied. But *it remains for you always to prove* that neither those minds which we call animals, nor any other form of matter, however fine, subtle, pure, and agile it may be, can be rendered capable of thought' (p. 183).

CHAPTER XI

THE THEORY OF IMAGES

In Epicurus's day there were various theories of perception. If the eye sees any object, say a rock, does the eye in the act of seeing exert any influence on the rock, or does the rock exert any influence on the eye, or do both exert a mutual influence? The first is the view of the Stoics, who held that a warm breath goes out from the soul which, so to say, transforms the intervening air into a cone of which the base is the object seen while the apex reaches the eye, thus connecting the eye with the object.[1] The third is that of Empedocles, who held that an efflux passes from the object seen towards the eye, and at the same time an efflux of fire from the eye towards the object, and that perception by sight occurs when the two streams meet, apparently close to the eye, so that the efflux from the object also enters the pores of the eye. The second explanation is that of Epicurus, and is also fairly consistent with that of modern science.

Epicurus explained the operation of all the senses by the theory of 'emanations' or 'effluxes'[2]—that is to say, that all bodies discharge atoms which enter the pores[3] of our various organs of sense. This theory he borrows from Empedocles, and makes it the foundation-stone of his philosophy. Here again we shall note the shrewdness with which Epicurus took the measure of

[1] Epicurus rejects this notion in the remark on hearing (Diog. L., x. 53).

[2] ἀπορροάι.

[3] πόροι, literally 'passages.'

the average man who is not a philosopher, and supplied 'something practical' in answer to the demands of the time. Since the great metaphysicians of the previous generation, the world had grown somewhat weary of metaphysics. In that age of social chaos, when life was precarious and national ideals had been lost, instead of endless definitions of 'Happiness,' 'Virtue,' and other conditions and qualities, men were eager to be shown the easiest and shortest road to happiness itself, and were willing to accept whatever philosophical basis of belief looked most obvious, and easiest to apprehend. But one cannot help reflecting that that explanation of any problem which *looks* easiest and the least metaphysical sometimes proves the most difficult when we come to apply it.

'Now that I have taught what the nature of mind is . . . I will attempt to lay before you a truth which has most weighty bearing on these questions[1]—namely, how there exist what we call images of things, resembling films peeled off from the surface of objects. These images hover to and fro through the air.' Here, mindful of the purpose of his poem, he stops to point out that in these images we have an explanation of the apparitions and ghosts of which we have such a dread, when we actually imagine that the dead have escaped from Acheron, or that it can be possible for anything to survive death. He continues: 'These images are to be called either cast-off films, or, if you will, name such an image a 'rind,' because it bears an appearance and form like to that thing from which it was shed ere it wandered abroad.'[2] These

[1] 'Quod vehementer ad has res attinet' (iv. 33).

[2] iv. 25-52. Lucretius uses either *simulacrum* or *imago* or *effigia* to express the εἴδωλα or τύποι of Epicurus (see Diog. L., x. 46-50). Zeller has said (Eng. trans., p. 402): 'Pictures, too, may strike our senses to which no real objects correspond.' Such pictures, *e.g.*, of a centaur, may be perceived by the mind, but certainly not, in ordinary cases, by the senses, Lucretius holds. Such non-natural complex images, not coming from a *res*, might be formed in the air, but they would not recur often enough to produce vision by the eye. When he says that phantoms of the

images, he seems to add, 'fly off spontaneously and have no sensation.'[1]

Lucretius defends his theory by analogy: How many things do we see discharging part of their substance! Logs emit smoke, the cicadas emit gossamer, new-born calves throw off cauls, the serpent sheds its skin, and so on. '*Since* these cases occur,' he goes on, 'fine images *must* also be emitted from the surface of things: not a tithe of proof can you show why in these cases things should throw off their outer surface, and yet all bodies not possess the power to discharge films which are far finer.' Epicurean logic!

If such things thus discharge their outer coats which can actually be handled, much more may we expect all objects to throw off *very fine films*, which preserve the shape of their originals and are thrown off 'with far more velocity,'[2] since the atoms forming these images are fewer, and lie on the very surface of the things emitting them. The images producing colour, for instance, come from the surface of things; this he illustrates from the amphitheatre:

'This is what happens when orange and red and dark blue awnings are stretched over great theatres, fluttering and waving as they spread across the poles and cross-beams, for then they dye the whole assembly in the seats below, and all the splendid show upon the stage, and the richly attired company of the senators,

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dead are caused by images (iv. 35), he must mean that these are images which have somehow lost their way, and after being long detached from some human form, now vanished from earth, which emitted them, return to meet our sight. This, he implies, is a very rare occurrence.

[1] 'Quin potius noscas rerum simulacra vagari
Multa modis multis nulla vi cassaque sensu.'
iv. 127, 128.

Munro renders: 'The idols are of no force, powerless to excite sensation.' It is impossible to say where these two lines should come in.

[2] iv. 70.

and compel them to dance about in borrowed colours. And the more closely they are shut in all round by the walls of the theatre, the more is everything within bathed in the charm of colour, and laughs gaily in the scantier daylight.'[1] Since sheets of canvas can thus emit colour, so must all other things emit their own images. These images must be exquisitely fine, and cannot be seen singly. They become visible by their constant repetition.[2] Unlike smells, smoke, heat, they do not come from within, and so run no risk of being torn in passing out, since their atoms 'are ready to hand, being stationed in the first rank'—that is to say, on the surface. The reflections in mirrors, too, can only be formed by emitted images of things. In no other way can we explain the similarity of the mirrored picture to the object. Images, he tells us, are reflected from glass because its surface is smooth and hard. Evidently Lucretius finds in mirror-reflection the strongest proof of his theory.

If you wish to learn how fine these images are, think of the organs of the smallest insect: how fine must be the atoms which form its heart or eye! Or of the intense perfume that certain herbs emit: how small must such atoms be! No wonder, then, that single images of such subtle texture are unseen, unfelt.

The number of these images must be enormous. Every existing thing is perpetually sending them off; they are constantly flying away in every direction, one following another with enormous velocity. 'In a moment of time there must be carried away from things images many in number, in many a fashion in all directions round.'[3] Thus, if you place an object opposite a mirror, its image instantly appears. How suddenly, again, does a cloudless sky become overcast with frightful storm-clouds! What a multitude of images must these discharge before they become so speedily visible to us!

[1] iv. 75-83. The senators occupied the orchestra in front.
[2] iv. 106, 107. [3] iv. 165.

The images being of the very finest texture, as soon as ever they touch any rough substance, such as stone or wood, they are torn and broken to pieces. Substances like glass, the pores of which are wide and straight, they can pass through.[1] But when they meet a substance both shining and dense, like a mirror, the polished surface reflects them without injury, and they stream back to us.

The images travel with enormous velocity, since they are of very light atoms; and we observe such things—for example, sunlight—to travel very swiftly. These images, which come from the surface of things, travel far more swiftly than light; coming in instant succession, the one impels the other, so that 'all in a moment they fly through space unspeakable.' A proof is this: Put a vessel with water in the open air, and note how swiftly the heaven is reflected in it, with the stars also, if it be night. 'Do you see now in what a moment of time an image may drop down from the borders of heaven to the borders of earth?'

The logic of the next passage is astounding. 'Again, since a particular object which has been felt by our hands in the dark is recognized to be the same which we have seen in the bright light of day, touch and sight must of necessity both be excited by a cause exactly the same.'

'Necesse est
'Consimili causa tactum visumque moveri.'

'Now, then, if in the dark we handle a square thing, and it makes on us an impression [of squareness], what other square thing will be able to fall on our sense of sight in open day except its image? *Therefore*, the cause of seeing manifestly lies in images, nor can anything be seen without these.'[2]

Lucretius must mean here that feeling and seeing

[1] 'Nisi recta foramina tranant
Qualia sunt vitrei.'
iv. 601.

[2] iv. 230-238.

must be produced in the same way—that is to say, by material contact between the eye and the object. Seeing, therefore, must be a kind of feeling with the eye.

Again, the train of images pushes before it all the air between the object and the eye, and thus that air all glides through our eyes, and brushes the pupils, as it were, and so passes through. In consequence of this we discern how far off each thing is. And the greater the quantity of air which is driven before the images, and the more prolonged the current which brushes our eyes, the more distant each different thing is seen to be. Thus we are able to reckon of distance : ' These processes go on with extreme rapidity, so that at the same moment we perceive what a thing is like and how far distant it is.'[1]

One naturally asks, How can anything so fine as a series of images be able to drive the air before it ? Probably because of their enormous velocity. It would seem far simpler to assume that the images are finer than the air, and can fly through it.

Lucretius discusses mirror-reflections at some length. He asks why it is, when we look into a mirror, we see our own image, not on the surface, but apparently inside the mirror and beyond it. Here again the intervening air plays an important part in the explanation. He asks next, why do we see right in a mirror as left, and left as right ? It is because the image, on coming against the mirror, is dashed straight out in the opposite direction, like a wet plaster-mask thrown against a post. Again, why do a series of mirrors bring into view all the recesses

[1] iv. 246-253. A German scholar (Schütte, ' Theorie der Sinnesempfindung bei Lucrez,' 1888, p. 9) finds an inconsistency here. He says : ' There is no room for the air within the structure of the eye ; either some reservoir would be required, or some opening in the back of the head through which the air might pass out, taking a longer or shorter period to do so.' There need be no difficulty here. Lucretius conceives all substances to be porous ; images, therefore, might pass in one way and pass out another without hindrance.

of a house? why do mirrors of a certain shape reflect right as right and left as left? and so on.[1]

A German critic writes: 'To me it appears not unfrequently as if Lucretius were not himself so well satisfied with his "demonstration," as if sometimes in the quietest corner of his heart a feeling had waked up which compelled him to escape from the difficulty by renewed asseverations and the most vigorous piling up of *ergo* and *propterea* and *cum* and *quod* and *quapropter*, and all the other available conjunctions of inference.' He is forced to ask, 'What in all the world compels all objects to send forth these images? Did the Epicureans believe that this property was immanent in things and inseparable from them?' Nothing in the whole domain of physics, he objects, points even distantly to any such property as being a necessary attribute of things. 'Such ceaseless emissions could not fail to produce some change in the exterior, and perhaps also in the interior, of things.'[2]

But, in fact, Epicureanism *did* assume a constant growth and loss in the entire substance of every 'thing,' some atoms constantly being added and others constantly passing off. There is no doubt that the whole theory of images, when we apply it to explain the operation of the senses, bristles with difficulties. Lucretius may feel these, but he is not troubled with sceptical doubts. The whole subject of images as treated in book iv. is evidently a first sketch. Even allowing for its enormous difficulties, many points are incompletely dealt with. For instance, the extreme velocity of the images plays an important part which is implied rather than described.

The supposition of 'images' detached from things and floating in the air is a very natural one. It must have seemed not only the simple and obvious, but almost the only way of accounting for such phenomena as the *fata Morgana* (which Lucretius may have seen in the Straits of Messina) or the mirage of hot countries, where

[1] iv. 269-323. [2] Schütte, pp. 8, 9.

water, trees, buildings, are seen in places where they do not exist, and sometimes at a great distance from the actual objects. Thus Lucretius might well speak of the images as 'roaming,' 'wandering about.'[1]

Lucretius goes on to distinguish between the vision of the mind and that of the bodily eye. '*So far as the one resembles the other*, seeing with the mind and seeing with the eyes must be effected in a similar way.'[2] (This sounds cautious, but Lucretius at once assumes the identity of the two processes.) Since we see a lion by its images which strike the eye, you may be sure the mind is moved in a similar way, only it perceives the lion by means of far finer images. This is why we see (in dreams) centaurs and figures like Cerberus or Scylla, since there are some images which do not come from any actual thing (*res*), but which are 'spontaneously produced within the air.' These are sometimes compounded from two different images jostling together.[3] Such images, when they meet, readily unite like cobwebs or pieces of gold-leaf. For instance, the images of a man and a horse: thus we dream of a centaur. Such phantom images, which have not been discharged from any *res*, are distinguished from true images by the fact that the former are constantly altering their form, even as we see clouds do,[4] whereas the true images retain the appearance of the 'thing' which emits them.[5]

'As these images, from their extreme lightness, are borne on with velocity, as I have shown before,[6] any one single subtle image of any kind readily impresses the

[1] 'Vagantur,' iv. 724; also 52, 127, etc. [2] iv. 750 *ff.*

[3] 'Omne genus quoniam passim simulacra feruntur,
Partim sponte sua quæ fiunt aëre in ipso,
Partim quæ variis ab rebus cumque recedunt
Et quæ confiunt ex horum facta figuris
Nam certe ex vivo Centauri non fit imago,' etc.—iv. 735 *ff.*

Epicurus seems to have called such compound images of unreal things συστάσεις (Diog. L., x. 48).

[4] iv. 129-142: an evident addition, not incorporated by the poet.

[5] See iv. 48 (Munro). [6] iv. 176 *ff.*

mind by its single stroke ; for the mind in itself is fine and wondrously nimble.'[1]

> ' Facile *uno* commovet *ictu*
> Quælibet *una* animum nobis subtilis *imago :*
> Tenuis enim mens est et mire mobilis ipsa.'

This statement applies not merely to the unreal compound images, but to all others. Owing to the marvellous nimbleness and fineness of the mind, a single mental image ' by its single stroke ' can cause perception, whereas the bodily eye can only discern a succession of images.

Lucretius goes on to notice some optical illusions : the distant tower which appears to us as round because the images sent out by the sharp corners have lost their form ; ' the impact of their blows never makes its way to our sight because, while the images speed on through much air, the air by repeated buffetings of necessity blunts their stroke.' It is the same with other illusions : the ship on which we are sailing seems to stand still ; the one which is moored seems to move on, while the shore past which we sail seems to be dropping astern ; when the wind is driving clouds across the sky at night, the stars appear to be moving in the opposite direction ; the roof and sides of a colonnade appear to converge ; when we cross a river on horseback and stand fast in the middle, the horse seems to be moving up the stream ; oars under water appear bent and broken.

But in all these cases it is not the senses that mislead us ; it is the mind which draws a false inference. The senses spoke true. ' Many other marvels of this sort do we see, which all seek, as it were, to shake our faith in the senses. All in vain, since the most of these cases deceive us because of the mental suppositions which we ourselves add, so that those things are taken as seen which have not been perceived by the senses. For nothing is harder than to draw the line between manifest facts and uncertainties which the mind, all of itself, straightway adds on.'[2]

[1] iv. 722-748. [2] iv. 462-468.

'Nothing is harder.' But what, then, of the infallibility of the senses?

Suppose that a man asserts that nothing can be known, Lucretius continues—how does he know this? All reasoning is founded on the truth of the senses. Our very conception of truth (*notitia veri*) is derived from them. If a man has no certainty as to objects in the outer world, whence does he get the notion of true and false? Sense must be higher than reason, since it can, in the form of experience, confute reasoning. All the senses are equally true, nor is the same sense more true at one time than it is at another. 'All reasoning would come to nought—nay, man's very life would immediately collapse—unless you dare to trust the senses.'

'Non modo enim ratio ruat omnis, vita quoque ipsa
Concidat extemplo, nisi credere sensibus ausis.'

They alone teach us to avoid precipices and other dangers, and to choose safety. 'Just as in any building, if the workman's plummet or square is untrue, all the walls must be crooked or sloping, slanting forwards or backwards, and must presently fall: so, too, all reasoning must needs prove to you distorted and false if it is founded on senses that are false.'[1] Therefore his conclusion is, 'Whatever has at any time appeared true to each sense is true.'

'Proinde quod in quoquest his visum tempore, verumst.'[2]

Epicurus, like our own Lord Bacon, expressed a certain contempt for logic; nor is this wonderful when we consider how much ancient logic was occupied with sophistical, verbal arguments. Because Epicurus rejected formal logic as misleading in its method, he has been treated as ignoring logic altogether. Nominally he reduced logic to 'canonic'—that is, to an inquiry into the 'criteria' or tests of truth. These are 'perceptions,' 'feelings,' and 'mental representations.'[3]

[1] iv. 379-468. [2] iv. 499. [3] προλήψεις.

These last are produced by the repetition of perceptions—*e.g.*, the conception of an apple-tree after seeing many apple-trees. They are mental pictures rather than definitions, and take the place of general notions. Epicurus will have nothing to do with definitions: he considers them misleading, as establishing a fictitious quasi-independent reality between things and thoughts. 'To him a word existed only as the symbol of a mental image,'[1] and must carry with it a clear and distinct picture of the thing. To these tests, it is said, the Epicureans added a fourth.[2] Lucretius refers briefly to this last when he says that 'the mind's spontaneous out-reaching flies on, seeking to realize the nature of infinite space beyond the world, and what it contains.'[3] Various passages of Epicurus confirm that statement. It appears to mean that the mind can make a spontaneous effort to realize by imagination what is not seen, and that such impressions are to be accepted if sense does not testify against them.[4] Epicurus lays down the rule that we ought to proceed from known facts to search for the unknown,[5] and in his science he continually acts on this. Even though he laid down no definite theory of it, there is no question that Epicurus took a deep interest in all inductive logic. One of the treatises of Philodemus unearthed at Herculaneum deals with the subject of inductive reasoning.[6] The treatise, which has many gaps, is directed

[1] Wallace, 'Epicureanism,' p. 222.

[2] οἱ δ' Ἐπικούρειοι καὶ τὰς φανταστικὰς ἐπιβολὰς τῆς διανοίας —literally, 'the imaginative efforts (or 'reachings forth') of the mind' (Diog. L., x. 31).

[3] 'Animi jactus liber quo pervolet ipse' (ii. 1047); compare l. 740: 'animi injectus.' Compare Cic., 'De Nat. D.,' i. 54: 'Se iniciens animus'; also of the mind attempting to realize infinite space.

[4] Diog. L., x. 34, 51, 62. See Wallace, pp. 222-224; Tohte, 'Epikur's Kritorien der Wahrheit,' 1874; and Giussani, vol. i., 171 *ff.*

[5] Diog. L., x. 33.

[6] περὶ σημείων καὶ σημειώσεων, in Gomperz's 'Herkulanische Studien,' 1865, part i. See also Bahnsch's pamphlet on the treatise, 1879.

against the Stoics, who refused to admit anything but deductive reasoning. Philodemus requires that different individuals of the same kind be examined in order to discover those features which are constant. These features may then be ascribed to other individuals of the same kind. Beyond question, Epicureans did grasp the principle of 'imperfect induction' and insist upon its importance. But they did not themselves apply this valuable instrument to make advance in science.

Lucretius's theory of images is beset with difficulties great and small. One cannot help asking, How do these images produce sight? They enter the pores, the *viæ oculorum*,[1] but *why do we see?* Both Epicurus and Lucretius ignore this question. Their formula would seem to be, 'An image + the impact of that image on the eye = vision.' But this is not all. As we shall see,[2] in all acts of vision Lucretius presupposes the co-operation of the Will as deciding whether to receive any given image or not. What we do not choose to see, he asserts, we do not see. But where there is Free-will, Mind and Consciousness are also present. He forgets this. Wallace has said truly, 'Epicurus almost ignores the ego or conscious self. Each of us is an *object* of sensitive and intellectual vision; of the other fact, that each is a *subject*, he says nothing.'[3]

And yet Epicurus stoutly defends Free-will!

Wallace contrasts the Stoic and Epicurean schools with those of Plato and Aristotle, and remarks regarding the former that the main question raised in them was, 'How can we know when our ideas are true and represent objective fact? Where is reality to be found? . . . Epicurus and Zeno attempted to find this principle of reality which was missed by Plato and Aristotle. Reality, *they* declared, must be body, and the evidence for reality must be found in the senses. . . . What our senses tell us, what all feeling vouches for, that, according to him, is true and real. But all feelings or sensations have not

[1] iv. 351. [2] See p. 256. [3] 'Epicureanism,' p. 237.

this characteristic. The voice of sensation or feeling, if it is to be accepted as a witness to truth and reality, must be clear and distinct, palpable, tangible, and unmistakable.'[1]

Thus Epicurus lays down 'clear and distinct consciousness'[2] as the final court of appeal.

Lucretius says: 'Whatever impression we at any time receive from each sense is true.' But these impressions differ for individuals according to age, temperament, variations of health, etc. Are, then, the different perceptions which different persons have of the same thing at the same moment all equally true? The logical consequence would be to say, 'Each perception is true for each man,' and this brings us to Protagoras, with his doctrine that 'man is the measure of all things,' which means that there is no standard of truth, but that decisions of truth or error depend on the judgment of the individual. That Epicurus does not admit this signifies nothing.

When we ask, 'How are we to know a true image from one which is not accurate?' all that Epicurus can answer is that the wise man knows how to distinguish a mere *impression* from the actual fact.[3] But this, as Zeller truly says, is to admit that 'sensation does not show us things as they really are, but only as they happen to be in relation to us.'

Lucretius goes on to discuss the other senses. They, too, are a kind of feeling. Sound is due to atoms striking the ear. Here again his theory entangles him in a difficulty. A word, as soon as it is uttered, breaks up, he explains, into a number of words, which can therefore be heard by a number of people at the same moment! In taste, again, the flavour is pressed out from the food,

[1] 'Epicureanism,' p. 214-216.

[2] ἐνάργεια. Epicurus sometimes uses the term ἀίσθησις, sometimes φαντασία, for 'sensation.' Compare τὴν φαντασίαν ἣν καὶ ἐνάργειαν καλεῖ διὰ παντὸς ἀληθῆ φήσιν ὑπάρχειν (Sextus Empiricus, vii. 203, and Diog. L., x. 52).

[3] Cicero, 'Academica,' ii. 45: 'Epicurus dicit sapientis esse opinionem a perspicuitate (ἐνάργεια) sejungere.'

and passes into the pores of the tongue, being pleasant or the contrary according as the atoms are smooth or rough. Smell, again, is due to the emanations streaming from things : these travel far slower than sound or than the images causing sight.[1]

Curiously, Lucretius says nothing of a sense of touch. Epicureans regarded this, not as an independent sense, but as an auxiliary of the other four, and present in each.

According to the emanation theory, as we now see, the air around us is crowded with millions of images along with less definite emanations—images ever passing and crossing each other in every direction, some swifter, some slower, in infinite complexity of movement which yet is not confusion, so unsubstantial yet preserving their form, as they speed on their way to each sense of ours like ships each to its own haven. Their texture is exceedingly fine, but, infinitely finer and more subtle, the mind-images traverse these in every direction, while, subtlest and doubtless swiftest of all, the majestic images of the gods come flying through all the rest in never-ceasing flow.

All these images are atomic. We now realize how enormously minute Lucretius conceives his atoms to be.

The poet goes on to describe how Will moves the human body. Before the mind wills anything, an image must strike it—*e.g.*, an image of walking before we walk. 'First of all, images of walking present themselves to our mind and strike on it, as we have already said. Thence arises the Will, for no one begins to do anything until the mind has first determined what it wills. From the fact that it determinates this, there must exist an image of that thing.'[2] Next, when once the mind has

[1] iv. 522-705.

[2] 'Dico animo nostro primum simulacra meandi
Accidere atque animum pulsare, ut diximus ante.
Inde voluntas fit ; neque enim facere incipit ullam
Rem quisquam, quam mens providit quid velit ante.
Id quod providet, illius rei constat imago.'
iv. 881.

willed to walk, at once the mind (*animus*) strikes the soul (*anima*), which is scattered all over the body; next the soul impels the various members of the body, and 'so, by degrees, the whole mass is impelled and set in motion.'[1]

If, then, we will because an image strikes the mind, is not man at the mercy of casual images? How reconcile this with Free-will?

Lucretius is sorely put to it to answer this question, but he struggles valiantly. How is it, he asks, that we are able to call up before the mind at once whatever we may wish to think of—a crowded assembly, a procession, a battle, or so on—and this while another person close beside us has his mind busy with things quite different? It is because in one unit of time, though it be only long enough to speak a single word, reason tells us that many times are latent during which all these different images might appear to us. (The air beside us is full of images of every kind. During the many subdivisions of a second a vast number can glide before the mind. From these the mind selects whichever it prefers.) 'Because these images are so fine, the mind can see distinctly only those which it strains itself to see; therefore all the others are lost except those only for which it has made itself ready.' Just as the eyes must at times strain themselves before they can see things which are minute or of fine texture, so the mind must exert itself in order to discern these subtle images (of which, be it remembered, one alone is enough to produce a mental picture). And when, in a dream, we see figures move, this is because the mind, having seen one given image, 'has prepared itself' to perceive the same object in other attitudes.

(If that object be living, we shall probably expect to see it in motion. Lucretius seems to mean that, if the image of a horse be seen by the mind, in its neighbourhood are likely to be other images—some, for instance, of the same horse galloping. All these have come from an actual horse somewhere existing.) It is nothing strange

[1] iv. 794-804.

God with a merely capricious Divine resentment and a merely capricious Divine favour. Here again he ignores, as usual, what the best minds before him had thought and felt. Cicero had too good reason for saying that Epicureans read nothing which did not originate from their own school.

It is only natural that the question should be put, If the bodies of the Gods are atomic, how are they to escape destruction ?

> ' If all be atomic, how then should the Gods,
> Being atomic, not be dissoluble,
> Not follow the great law ?'

Schoemann, with characteristic acuteness, offers an answer which accords better with Epicurean science than the theories presently to be mentioned. In the treatise of Philodemus ' On Piety ' occur the words : ' We must consider the Gods to be neither atoms nor yet compounds of atoms.'[1] Munro suggests that these words mean that the Gods are not compound bodies but quasi-compound bodies ; their atoms stand in eternal juxtaposition, and have come together so that they cannot be separated.[2] The question turns on this : How are the atoms of the Divine bodies held together ? Schoemann says : ' It is not improbable that, while Epicurus asserted that all other things are formed of atoms of various different shapes, he held that the bodies of the Gods were formed of like atoms only, the union of which would be more firm and less liable to dissolution.'[3] It needs but small knowledge of Epicurean physics to see how much is implied in this suggestion. The atoms of the Divine bodies are solely of the finest and most ethereal kind. A compound of purely homogeneous atoms of the finest sort would hold together as if by mutual attraction, and cohere in an almost ' organic ' way, far more closely than

[1] *μήτε γὰρ ἀτόμους νομίζειν τοὺς θέους μήτε συγκρίσεις . . . ἅπασαν γὰρ τὴν σύγκρισιν φθαρτήν* (' Fragm. Herc. Tab.,' 121, 122).

[2] See his note on v. 152.

[3] ' De Epicuri Theologia ' (' Opuscula,' iv., p. 341).

ordinary matter formed of unlike atoms grossly tangled. Such bodies would be different enough from ordinary matter to be called 'no compounds.'

We must beware of imagining that the bodies from which the Divine images come are of gross texture like our own bodies. Instead of this, their substance is inconceivably finer than any form of matter known to us.

> 'Tenuis enim natura Deum longeque remota
> Sensibus a nostris animi vix mente videtur.'[1]

'One thing thou canst in no wise believe—that the holy dwelling-place of the Gods can exist in any part of the world, for *the fine nature of the Gods is far, far withdrawn beyond our senses' ken, and is hardly seen by the thought of the mind;* and, since it has ever eluded a blow or the touch of our hands, it can touch nothing which is tangible for us, since that cannot touch which may not be touched in turn. Therefore, too, must the place where they dwell be not like our world, but ethereal, even as their bodies are ethereal. All this I shall prove to you later in copious argument.'[2]

It is of this ethereal matter, so refined as hardly to seem matter at all, that Epicurus framed his Gods. There is a vast gulf, an almost infinite distance, between their substance and the matter of which our senses are cognizant. Human hands, Lucretius tells us, have never touched a Divine body, and that which does not admit of being touched cannot touch. Such Gods, he holds, cannot exist in a world of gross matter like ours. Here they are out of place. Them the constant beating of the atoms, ever making and marring earthly things, cannot

[1] The words 'animi vix mente videtur' (for which Cicero says, § 49, 'non sensu sed mente cernatur') answer to the Greek τοὺς θέους λόγῳ θεωρητοὺς εἶναι in Diog. L., x. 139. Schoemann (p. 346) curiously misunderstands the last words, interpreting them to mean that we apprehend the existence of the Gods solely by a train of reasoning carried on by the mind, quite apart from the influence of the 'imagines' passing directly into the mind.

[2] v. 146-155.

indeed, destroy, but such jar and strain were incompatible with their perfect bliss. Their images slide through our air, pass through solid walls, and enter our minds, but they themselves could not endure here, where decay and dissolution are on every hand. The assimilation of fresh matter, on which their life and permanence depends, could not go on ; their peculiar physiology demands a world of its own, and therefore he places them in the space between the worlds, ' cut off by a vast and unsurmountable wall from the touch and sight of mortals.'[1] An Epicurean writer[2] says : ' Nothing which is perceptible by sense can be immortal ; this is precluded because its solidness exposes it to violent blows ' ; and to the same effect Cicero says : ' Epicurus avoids attributing to his Gods solid and dense bodies lest this should imply their death and dissolution. He asserts that the Gods have no body, but something like body ; and no blood, but something like blood.'[3] (This last definition greatly amused Epicurus's adversaries.)

Fine and ethereal as Divine bodies are, the effluxes from them must, of course, be of infinitely finer texture, and can only be discerned inwardly by the eye of the soul. Our senses are too coarse to challenge their entry or note their passage. But though the bodily eye be too gross, our soul, which is, as he has told us, ' the finest and most nimble ' of existing things, and formed of the finest and smoothest kind of atoms, is therefore in its essence akin to the Divine nature, so that like is discerned by like. It is especially during sleep, when sense is lulled to rest,

[1] ' Hunc igitur (Deum) intersæptum ingenti quidem et inexplicabili muro divisumque a contactu et a conspectu mortalium non habes quare verearis ' (Seneca, ' De Benef.,' iv. 19).

[2] Perhaps Metrodorus (' Voll. Hercul.,' vi., part ii., p. 35).

[3] ' Idem facit in natura Deorum dum individuorum corporum concretionem fugit ne interitus et dissipatio consequatur, negat esse corpus deorum sed tanquam corpus, nec sanguinem sed tanquam sanguinem ' (' De Natura Deorum,' i., § 71). I follow Schoemann's interpretation of ' concretio ' as ' nulla solidior et crassior atomorum condensatio.'

and no grosser images stop the way, that the Divine visions, ever fleeting towards us and yet seldom seen, can actually penetrate to the soul. And as Lucretius shows how the finer mental visions called up by our imagination can only be seen when the mind isolates itself from other impressions, and 'strains itself' to discern them,[1] so doubtless the waking visions of the Gods which he speaks of were seen chiefly by the worshippers during some lonely vigil, fasting and with mind wholly absorbed in preparation for some solemn rite.

Certain Epicurean doctrines, such as that of Atomic Declination and that of the 'parts of the atom' (which parts, however, are inseparable), show how boldly Epicurus could dogmatize on occasion. When they had to face such questions as those of the Divine body, good Epicureans could only encourage one another to 'have faith; has not the Master said it?'

Further than the belief that the Gods have bodies like our own, that they are happy and immortal, our 'preconceptions' of them, which we share with the mass of mankind, will not carry us. If we ask as to their mode of life, the nature of their happiness, the way in which their organisms are nourished, the material of their bodies, their dwelling-place, we have no reliable Epicurean scriptures to fall back upon.

The Gods require both food and drink as men do.[2] Philodemus discusses the question whether they sleep.[3] Sleep being a necessity for mortal natures, he concludes that the Gods, being immortal, do not sleep, yet they enjoy periods of repose resembling sleep. Since good men find the utmost pleasure in conversing with their fellows,

[1] 'Et quia tenuia sunt, nisi se contendit, acute
Cernere non potis est animus.'

See the whole passage, iv. 801-817. We may compare the practice of sick persons sleeping in the temple of Æsculapius in expectation of a vision which might reveal some means of cure.

[2] 'Voll. Herc.,' Pars Prima (Oxford, 1824), vi. 73-77.

[3] From Philodemus, περὶ θεῶν διαγωγῆς, 'On the Mode of Life of the Gods' ('Fragmenta Herc.,' by W. Scott, 1885, col. 11-13).

Philodemus asserts that the Gods also must converse with each other ; further, they must speak in Greek, since that is the language of the wisest of men, and the Gods must resemble these.[1]

Another surprising dogma of Epicurean theology is that these strange Deities are innumerable. 'We hold,' says Philodemus, 'that the Gods are not only as numerous as all the Greeks assert them to be, but still more numerous.'[2] Velleius, in Cicero's dialogue, asserts that they are as numerous as men are. Epicurus believed, as we have seen,[3] in a law of Counterpoise or Balance, on which the maintenance of our world depends. Thus Lucretius says that if any animal be rare in one country it must abound in another.[4] If Cicero's Epicurean spokesman is to be trusted, Epicurus applied this principle in a very wide and rather surprising way : for example, if there are beings which are mortal, there must also exist beings which are immortal ; if the forces which destroy are innumerable, the forces which preserve things in being must also be innumerable ; if the number of mortal beings is vast, the number of immortal beings must be equally great.[5] An infinite number of Gods is, no doubt, a doctrine repellent to reason, but what is reason compared with logic, or even with the semblance of logic ?

Regarding the constitution of the Epicurean Gods, a curious theory has been brought forward by a French writer, M. Lachelier,[6] and adopted and developed by an English scholar, Mr. Walter Scott.[7] The latest editor

[1] From Philodemus, *περὶ θεῶν διαγωγῆς*, 'On the Mode of Life of the Gods' ('Fragmenta Herc.,' by W. Scott, 1885, col. 14).

[2] *Ibid.*, p. 84. [3] See Chapter V. (close).

[4] Lucr., ii. 522. [5] 'De Natura Deorum,' i., §§ 50 and 109.

[6] 'Revue de Philologie,' 1877, p. 264.

[7] Mr. Scott has worked out his surprising theory with great learning and ingenuity ('The Physical Constitution of the Epicurean Gods,' *Journal of Philology*, 1883, pp. 212-247). Giussani develops it further, interpreting the texts in strangely uncritical fashion so as to suit his theory. I have examined the arguments of both in the *Classical Review* for December and June, 1902 (see Appendix, vol. ii.).

of the poem, Carlo Giussani, has accepted Scott's theory, and expounded it at great length with further modifications. Lachelier asserts that the Gods of Epicurus have no definite individual or even material existence, but merely, so to say, a formal one. The perpetual succession of images or films arising in some unexplained way from the infinite atoms in the universe streams together to a kind of focus in the intermundia, and there constitutes for a moment the physical being of the Gods, a being which is of the nature of a superficies rather than of a solid. The next moment fresh images crowd in to take the place of the former ones, which are free to stream away again in the form of Divine images, which enter into the minds of men and implant there the conception of Deity. According to this notion, the physical being of the Gods is in an eternal flux, yet their Divinity always abides ; it 'changing ever, changes not.'

The images which form the Divine bodies arise out of infinite matter 'in some unexplained way,' says Lachelier. Scott says: 'No clear explanation of the origin of the images can be given.' The images 'pass from the places where they take their rise to the point where, by their meeting, they constitute for a moment the Divine being, and from that point again to the human mind.' But for the proof of such a theory it is necessary, before all else, to explain how the images come into being. According to Epicurus, no image can be produced except from a 'thing' or 'compound substance' (*res*) ; atoms can never, even if infinite in number, produce an image in human form except through the medium of a human being. Had Scott suggested that the images, streaming from the bodies of the countless human beings in the world, fly to the intermundia, and thus form the Divine bodies, this, however untenable, would not have been so inconsistent with Epicurean doctrines.[1]

[1] Scott is not justified in saying that Hegel adopts this last-named explanation of the Gods of Epicurus. Hegel's account is very vague and contradictory, as is natural, since the texts had

Epicureanism has, indeed, its pitfalls for the historian of philosophy, as Scott's theory once more reminds us. How can we reconcile such fanciful abstractions as these with the harmless Epicurean Gods, who enjoy all good things, and constantly meditate how happy they are: *Mihi bene est?* Lucretius says that 'Nature supplies all the needs of the Gods' in the intermundia. Philodemus asserts that they require and use food, statements which cannot possibly apply to bodies which are mere superficies. How can Beings whose body is merely surface without bulk continue to throw off in constant streams those Divine images which, however fine, are still material? Why should the focuses at which the 'images' of unexplained origin meet have the power to generate a Divine body from matter which the next moment is flying from them in the shape of Divine images? What use have such phantoms as these, who have no individual existence or personality, for speech and philosophic converse, which Philodemus insists they enjoy? Again, had this notion been true, is it likely that none of the many Greek and Roman critics who make merry over Epicurus's theology would have exploited these Deities-in-flux on the humorous side?

One objection is sufficient by itself to discredit the theory of Scott and Giussani. It annihilates a central doctrine of Epicureanism. To Epicurus the inflow of the Divine images into our mind is proof positive that Gods exist. But if the Divine images arise ready-made 'in some unexplained way' from the atoms, why should they not fly directly into our minds? Why assume at all that they first meet together and form Divine bodies? On this theory the images cease to be a proof that the

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not in his day been compared and studied. The Gods, he says, are 'the Universal'; 'the general images which we receive into our minds'; 'this general image is the same which we name "the Ideal"'; 'the Gods are also existing things composed of the finest atoms'; and so on ('Werke,' ed. Michelet, vol. xiv., pp. 506-509).

Gods exist. They could only prove the existence of images. And thus Epicurus's whole theology falls to the ground.

But the whole theory insults the ingenuity of Epicurus, who could easily, if put to it, have devised something far more plausible. Epicurus was the last man to have thought to satisfy the human craving for Gods who may be worshipped with mere abstractions of this kind. Scott has said: 'All that we find in Lucretius is an unfulfilled promise to treat the subject later, as though he had postponed it from a consciousness of its difficulty.' Lucretius might well have thought such a theory 'difficult' to make coherent or even plausible, but surely we have here an excellent instance of the 'pathetic fallacy.' No wonder Scott feels it necessary to add the comment, 'Lucretius has not as yet carefully studied or fully understood the Epicurean doctrine of the Divine nature.'[1]

A fourfold mist, indeed, surrounds the question of the material constitution of the Epicurean Gods. The texts bearing on the subject are both vague and difficult.[2] Epicurus expounded his theology in treatises which neither his opponents, nor yet in every case, it would seem, even his friends, had the patience to read and master; at least, neither party have been able to give an account of the matter which is at all intelligible. It would appear, however, from the vague statements of Cicero and others that we recognize the images coming to us from the Gods as Divine, and not of mere human origin—firstly, because of their beauty and grandeur; secondly, because of the constant succession and endless stream in which such images flow into the minds of men, their countlessness and unbroken succession seeming to count for a proof of the immortality of the beings from whom they emanate; and, thirdly, because of their unchanging type—they are always alike. Thus from the character of their images we infer the happiness and immortality of the Gods. Wallace says that the Gods thus perceived 'are not

[1] *Journal of Philology*, 1883, pp. 226, 232.
[2] See Appendix, where these texts are discussed.

distinct individual figures like the Deities of the old Olympus. . . . We do not distinguish individual from individual. . . . They have no distinct individuality ; the images by which they are made known present a family likeness, and the variety of the Olympian heaven has totally disappeared.'[1] But there is no evidence for such a conclusion ; indeed, the statements of Lucretius and others distinctly contradict it.

In what region of space, then, does Epicurus place his Gods ? Rapt in vision, the poet sees the whole world and universe illumined by the wondrous search-light his master has shed over it : naught is hid from him ; even the seats of the Gods appear, but there is no hell.

'As soon as thy philosophy, born from a God-like intellect, has begun with a loud voice to proclaim the nature of things, away flee the terrors of the mind, the walls of the world part asunder, throughout the whole void I see things in their working. The Divinity of the Gods is revealed, and their peaceful seats, which neither winds do shake nor clouds drench with rains, nor does the snow, congealed by biting frost, hurt them with its white downfall. An ever-cloudless ether bends over those abodes ; they laugh in lavish wealth of light.[2] And Nature supplies all their needs, nor does anything ever impair their peace of mind. But, on the other hand, nowhere are seen the quarters of Acheron, yet earth hinders not that all things be discerned, whatever goes on throughout the void underneath our feet. At all this a kind of God-like delight—aye, and a shudder of awe—possesses me to think how Nature is by thy power visibly laid open and unveiled on every side.'[3]

[1] 'Epicureanism,' pp. 205, 206, and 209.

[2] Whence does this light come ? Not from our own sun, since that is within our own mundus, which Lucretius conceives as a system of comparatively small size. Have the intermundia, then, suns of their own ? Or is their light radiated from the *flammantia mœnia*, the walls of the worlds on either side of them ?

[3] iii. 14-30. Verses 19-22 are borrowed from the 'Odyssey,' vi. 42-45.

Very emphatically Lucretius asserts, as we have seen, that the Gods cannot exist anywhere in our world. 'One thing thou must in no wise believe—that the holy seats of the Gods exist in any part of the world. Wherefore, too, their dwelling-places as well must be unlike our dwelling-place, ethereal as their bodies are ethereal: all which I shall prove to you later in copious discourse.'[1]

Epicurus fixes the abode of the Gods in the intermundia,[2] the spaces between the worlds, which, be it remembered, are not, according to his system, vast as we conceive them. He expressly tells us that these interstellar regions are not absolutely empty space; they are made up of matter and void, and it is possible for a world to exist in them.[3] Cicero, pretending to assume that these Gods must not be taken seriously, says: 'Epicurus in jest makes his Deities transparent and so frail that the winds can blow through them, and he places them in the space between two worlds as if (in an asylum) between two groves,[4] for fear of the ruins in case either world were shattered.'

Here, in a world of their own, the Gods dwell, free from all danger as from all care. To describe this Epicurean heaven Lucretius borrows some verses from the 'Odyssey' depicting Olympus. It is a stormless place, never visited by rain, or frost, or snow, shining ever in the sunlight under the cloudless ether. The Gods of Homer might weary of their still and breathless and ever-sunny Olympus, and make swift flights to earth when they chose, taking their part among the children of men, teaching them, joining in wedlock with them, fighting for them; but not so the Gods of Epicurus. Their frail bodies cannot be endangered in our rough world of storm and battle, and their perfect peace of mind

[1] v. 146-155.

[2] By this term Cicero ('De Natura Deorum,' i., § 53) renders Epicurus's *μετακόσμιον*.

[3] Letter to Herodotus, § 88.

[4] The reference is to Romulus's asylum in a spot called 'Between Two Groves' ('De Div.,' ii. 40).

can only be preserved by completely isolating them from human affairs and human troubles, which they may indeed know, but can neither feel for nor care for: so they live in perfect bliss—

> 'Here where the world is quiet,
> Here where all trouble seems
> Dead winds' and spent waves' riot,
> In doubtful dreams of dreams.'

What a heaven! And what a world must Epicurus have lived in! and, moreover, how strange must have been the temperament on which *any* environment can have thus reacted before the thought of such a heaven could be even tolerable to him!

Just as Lucretius has borrowed from Homer to describe the atmosphere of the intermundia, so, doubtless, he might have borrowed further details from Plato's dream of an upper earth which lies 'pure in the pure heaven,' which we call ether: an earth so unlike this lower earth in which we live, a hollow, where everything is corrupted and eaten away by the foul and heavy air which streams in and sinks into it; whereas above there is no damp, corroding atmosphere to cause ugliness, or disease, or decay, so that there the earth gleams like a rainbow, and trees, flowers, and fruits are proportionately finer than ours, whilst the inhabitants as well differ from us in all their senses, being far superior to us in sight, in hearing, in smelling.[1] Had not the pen dropped from Lucretius's hand, doubtless he would have told us in full detail how all things in the wondrous Epicurean heaven are 'ethereal, even as the bodies of the Gods are ethereal.' But there would certainly have been in Lucretius no tone almost of contempt for the earth such as we find in Plato: certainly no sense of any jarring element in humanity which mars and stains earth's beauty.[2]

[1] 'Phædo,' p. 490 *ff*.

[2] See the passage describing Plato's influence on the young Schopenhauer in Caldwell's 'Schopenhauer's System,' p. 512.

It is certain that Epicurus both allowed and himself publicly practised prayer to the Gods. He held himself free to join, with whatever mental reservations, in the public sacrifices and acts of worship of the national religion. Such a statement may well take us by surprise. What direct evidence have we for it? Enough at least to place the fact beyond doubt. When Diogenes (who has himself strong leanings towards Epicureanism) tells us that 'the devoutness of Epicurus towards the Gods was unspeakable,' he doubtless refers, among other things, to Epicurus having taken a conspicuous part in public rites.[1] Philodemus takes pains repeatedly to emphasize the fact that Epicurus took part in the mysteries, feasts, and sacrifices of his native city, and also that he exhorted his friends to do the same.[2] Lucretius claims it as the privilege of the Epicurean that he alone can approach the temples of the Gods undisturbed by fears.[3] Plutarch, again, marvels how the Epicureans 'retain both oaths and prayers and sacrifices and acts of worship, but they retain them merely in word and name and in pretence, while, by their principles and doctrines, they destroy all such things.'[4] Origen denounces as 'vain' and useless the practice of the Aristotelians and of the followers of Democritus and Epicurus, who go about with the multitude, and make pretence to pray to

[1] Diog. L., x. 10.

[2] See Philodemus, *περὶ εὐσεβείας*, pp. 118, 126, 128, 146, in the edition of Gomperz ('Herkulanische Studien.,' 2, 1886).

[3] vi. 73-75.

[4] *ὡς ὅρκον, ὡς ἐυχὴν, ὡς θυσίαν, ὡς προσκύνησιν . . . ἀπολείπουσιν* ('Adv. Coloten.,' p. 1112 C). The whole passage is interesting. Plutarch has been proving that, according to Epicurus, 'Nature,' 'life,' and 'death' are merely mechanical processes, simply names for the continued movements, union, and dispersion of the atoms; that when they speak of the 'generation' of living creatures they mean nothing more than 'a turmoil and battle' of atoms which are 'empty, void of sense, godless, and lifeless,' and could never produce a living organism. And he goes on: 'How, then, do the Epicureans retain such terms as "nature" and "life" and "death"?' 'In the same way,' he answers, 'as they retain oaths and prayers,' etc.

images. 'For,' he says, 'there must be nothing ungenuine in the soul of the true worshipper.'[1] The Christian Bishop Dionysius also refers to Epicurus's constant use of the phrase, 'By Zeus!' and 'By the Gods!' in his treatises as an 'empty, false, and idle and meaningless' use of words.[2] The charge of hypocrisy is groundless, yet it can hardly be wondered at. It is, indeed, difficult to conceive how an Epicurean could consistently expect his prayers to be answered. Possibly the answer lay entirely in its effect of keeping the mind open to the influences of the Divine images. But this, after all, might mean a great deal. Atticus says: 'It is thus, according to Epicurus, that benefit comes to men from the Gods. The Epicureans say that *the better effluxes from the Gods are the cause of great blessings to those who receive them.*'[3] When prayer and meditation had opened a passage for the stream of Divine images to enter, then images of a Zeus, a Heracles, an Athena, might pass in and impress the aspect and character of each Deity upon the mind, and carry with them suggestions of virtue, of courage, of wise counsel in difficulty, of many of the things which human nature is wont to seek from a higher Power. When men believe that Gods exist and practise prayer to them, they are sure to ask their aid, even in ways which may not be consistent with their dogmas. Unreasonably, doubtless; but, in spite of the extreme Hegelians, human nature is not always logical. Religion, moreover, is not an affair of the mere intellect.

Why does Atticus speak of 'better' effluxes? Can the Gods also send out images which do hurt? Surely Epicurus denies this. The meaning is that the same Divine images which work for good to the Epicurean, whose life is free from crimes, and whose mind is purged

[1] Origen, 'Against Celsus,' vii. 66.

[2] In Eusebius, 'Præp. Evang.,' xiv. 27, 10.

[3] *ταύτη γε κατ' Ἐπίκουρον ὄνησις τοῖς ἀνθρώποις ἀπὸ θέων γίγνεται. τὰς γοῦν βελτιόνας ἀπορροίας ἀυτῶν φασι τοῖς μετασχοῦσι μεγάλων ἀγαθῶν παραιτίας γίγνεσθαι* (Atticus in Eusebius, 'Præp. Evang.,' xv. 5).

from superstitions, must bring hurt to the wicked or to the superstitious, both of whom must interpret them as coming from angry and vindictive Deities: the good have their minds ready and open to receive them, while for the wicked or the superstitious their peace-bringing entrance is obstructed, and for them the mere consciousness of God becomes a terror.[1] Thus, Lucretius says: 'Unless you reject from your mind with loathing these notions, and banish far from you all belief in things degrading to the Gods, *then often will the holy Deities*, having their majesty lessened by you, *do you harm:* not that the supreme power of the Gods can be so outraged that they should resolve to exact sharp vengeance, but because you will picture to yourself that they who live in quiet and in perfect peace have great billows of wrath rolling within them; nor shall you approach their sanctuaries with a calm breast, *nor shall you be able with tranquil peace of mind to take in those idols* which are carried from their holy body into the minds of men. And what kind of life results from this may be conceived'[2] —namely, what anxiety and what fear!

This inner calm is necessary to allow the Divine images to enter the mind, and, when they have entered, their presence there intensifies the peace within, seeing that the very essence of the Godhead is tranquillity.

Martha speaks of Epicurus's worship of the Gods as 'a kind of obscure mysticism.'[3] Doubtless he uses the

[1] It is thus that Usener ('Epicurea,' preface, p. xx.) has rightly interpreted Epicurus's words (Diog. L., x. 124): 'The assertions of the many about the Gods are not general notions, but false opinions. On this account the greatest harms are derived by the wicked from the Gods, and by the good the greatest benefits'—*ἔνθεν αἱ μέγισται βλάβαι τε τοῖς κακοῖς ἐκ θεῶν ἐπάγονται καὶ ὠφέλειαι* [*τοῖς ἀγαθοῖς*]. (Here again Gassendi came to the rescue of the text by inserting the last two words.) Usener also quotes Philodemus (*περὶ ἐυσέβειας*, p. 86, 13, Gomperz): *ἡμεῖς δὲ καὶ ταῦτα* [*i.e.*, evil], *ἐνίοις ἐξ αὐτῶν* [from the Gods] *λέγομεν παρακολουθεῖν καὶ τῶν ἀγαθῶν τὰ μέγιστα.*

[2] vi. 68-79.

[3] 'Epicurus, whose ethics are a kind of Quietism, is also a Quietist in religion. . . . He reduces piety to a passive admiration

term vaguely. Could there be any kinship between the living faith of the Mystics in a direct communion between man and the Divine and the childish notions of Epicurean 'theology'? It would be an insult to a Gerson or an Eckhart to speak of such a thing. Yet to acknowledge the Divine at all is to open the door to conceptions and inspirations which will ask no leave of the dogmas of Epicurus's or any other system before they enter in.

We cannot help thinking that Lucretius, had he lived, would have concluded his poem with a description of the Epicurean Gods and their heaven. The poem, as it stands, stops abruptly in the course of a description of the plague. Lange[1] says that Lucretius, 'perhaps intentionally,' concludes his work with a description of the power of death, as he begins with an invocation of the Goddess of Life. But we have absolutely no reason to suppose that Lucretius intended this for the conclusion. It seems plain that he intended the sixth book for the last. In its opening he prays to the Muse Calliope: 'Do thou point out the course before me as I speed on to the white boundary-line of the final goal.'[2] He has also expressly promised to describe the Gods and their seats at full length.[3] As this promise is nowhere fulfilled he must, apparently, have reserved this subject for the conclusion of the sixth book and of the poem. How then could Lucretius introduce such a subject after his description of the plague? Probably thus: The plague was supposed to come from the Gods, and to be a Divine visitation, but it has been shown to come from natural causes. How should the Gods trouble themselves

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of the Gods, and, in a kind of obscure mysticism ("une sorte de mysticisme épais"), which was, perhaps, only a convenient expedient, he fell down in ecstasy before Gods whom he had so thoroughly disarmed' ('Le Poème de Lucrèce,' 1873, pp. 105, 106).

[1] 'Geschichte des Materialismus,' 1873, vol. i., p. 120.

[2] 'Tu mihi, supremæ præscripta ad candida calcis
Currenti spatium præmonstra.'
vi. 92.

[3] 'Largo sermone,' v. 153.

to produce such a thing, they who live in perfect calm and bliss? Such a connection of ideas is in accordance with Lucretius's way of introducing a fresh subject, and would harmonize well with the introduction of the book,[1] proving that such interference is incompatible with the perfect bliss of the Gods. The account of the Gods and their abode might possibly have occupied several hundred lines. Doubtless a wonderful piece of painting that would have been (for Lucretius has gorgeous colours at command), and not entirely uninfluenced by the old mythology.

Perhaps we may view the picture of Venus and Mars in the proœmium as a single scene out of Lucretius's promised description of the new Pantheon and the Epicurean heaven. If he had lived to paint that closing scene of his poem, one wonders, would it have resembled the picture of the Epicurean Gods by our great English poet in the 'Lotos-Eaters'? Yet what contemptible Deities for any man to worship, with neither heart nor hand to help, lower far than the heroes worshipped of old with all their sins, for they, if suffering men called, would labour or die to help and deliver them. But with these no man's soul could ever have been satisfied; and who can say that Lucretius, dogmatic Epicurean as he is, would have used no bitter tone such as marks Tennyson's vivid picture?

'Careless of mankind:
For they lie beside their nectar and their bolts are hurled
Far below them in the valleys, and the clouds are lightly curled
Round their golden houses girdled with the gleaming world.
There they smile in secret, looking over wasted lands,
Blight and famine, plague and earthquake, roaring deeps and fiery sands,
Clanging fights, and flaming towns, and sinking ships, and praying hands,
But they smile; they find a music centred in a doleful song,
Steaming up a lamentation, and an ancient tale of wrong,
Like a tale of little meaning, though the words are strong.'

[1] See vi. 50-79.

It is not fair to say that the supposition of an allegory can entirely explain this invocation, for the address to Venus contains something in its tone more like a prayer for Rome and his countrymen, if we are not mistaken, than like a make-believe address to a mere conscious and intended allegory. A Roman worshipper in a temple raising his eyes to some marble statue of a God might form such mental pictures of Deity and use some such phrases as here suggest to us mere pictorial description.

Possibly, too, the passage may be more fairly viewed as the expression of some mood, earlier or later, than as spoken from Lucretius's habitual standpoint. His earliest inspiration—and evidently a very strong one—was derived, not from Epicurus, but from Empedocles, a thinker of a very different order. Lucretius speaks of him with the most fervent admiration, as almost more than a mortal.[1] Wondrous as is the Isle of Sicily which bore him, with the whirlpool of Charybdis in its strait and its Ætna ready to flame to the sky, he is yet her most marvellous product. 'Now, though this mighty land is seen in many ways to deserve the wonder of mankind, and is held a country that men must see, rich in all good things, guarded by strong force of men, yet it appears to have held within it nothing more glorious than this man, nothing more holy, marvellous, and dear. Nay, the poems of his God-like genius cry with trumpet voice, and set forth his glorious discoveries in such wise, that he seems scarce born of mortal stock.'[2]

These words express a profound and an enduring influence. The Divinity named Love or Aphrodite,[3] who brings all things into being, is a most prominent figure in Empedocles' poem, and she is very like the Venus of the Invocation. Another Greek poet who

[1] 'Geschichte des Materialismus,' vol. i., p. 120. [2] i. 726-733.
[3] The conception of 'Love' is vague, but Zeller regards it as a mere personification of tendency ('Philosophie der Griechen,' 1892, p. 770).

strongly influenced Lucretius was Euripides,[1] and he, too, repeatedly extols the power of Aphrodite. For him she is almost omnipotent; she is, he sometimes says, the all-ruling power both in Nature and in the heart of man. And in this proœmium we seem to have a wild reconciliation between Epicureanism and the religious nature-speculations of Empedocles (influenced, possibly, by Euripides also)—an Epicurean Venus, who is yet at the same time the life of the whole world. At any rate, the whole introduction of the poem bears a most unfinished character: the paragraphs composing it, though in strict sequence of thought, come in severally with a jerk, as it were, and it seems as if it had been written, not all at once, but at different times.[2]

The word *sola*—

'Quæ quoniam rerum naturam sola gubernas,

'Since thou *alone* dost govern Nature'—is very emphatic. Lucretius seems here distinctly to recognize one life in Nature. At all events, this is no 'imitation' of the popular creed. The poet may have returned at times to the deep earlier inspiration of his life which came from Empedocles. We are in danger of forgetting that Lucretius was not always an Epicurean. Doubtless, in spite of all his dogmatism, whether with his will or against it, there came to him times when the great life of the world refused to be expressed in the formulas of his narrow creed—moments when he felt that there was somewhere a contradiction between Nature and his own darling 'De Rerum Natura,' that the first was full of

[1] Munro says of Lucretius's description of the sacrifice of Iphigenia: 'There are clear indications, here as elsewhere, that Lucretius had carefully studied Euripides' (on i. 80-101).

[2] So Munro, in his second edition (see vol. i., pp. 346, 347), thought it possible that the poem originally opened with the passage now beginning at l. 62 ('Humana ante oculos'), but that Lucretius subsequently composed another opening passage—that with which the poem at present begins. He afterwards retracted this opinion.

something which was not taken count of in the other. Such moods may have found a voice in this bright picture. As we read it, we say to ourselves, 'Here speaks the truer Lucretius!'

The Epicurean doctrines regarding the Gods have been discussed in this chapter at wearisome length. Yet they have a claim to full treatment. Epicurus's theology is, indeed, the centre of his teaching: his science exists but for the sake of it, and yet this theology so little meets the demands which the human heart and conscience make of the 'Divine'; it so little satisfies the requirements of philosophy, that it has been matter for merriment or contempt to his critics, from Cicero and Seneca to the Fathers, and from the Fathers to the present day.

'That nature which is happy and immortal can neither have trouble itself nor cause trouble to another;'[1]—Therefore, the Gods can neither help us nor harm us. How childish and contemptible is the way of thinking which finds it possible to identify the Divine action, whether the scale of its working be small or vast, with 'trouble'! No truly reverent human spirit ever conceived or tolerated such a thought. The Gods are to be reverenced, said Epicurus, not because of what they do, but 'because of their excellence.' 'Whatever surpasseth in excellence,' says the Epicurean Velleius, 'has our veneration; the surpassing nature of the Gods deserves to be piously worshipped, because it is immortal and perfectly happy.'[2] Such claims to reverence were not accepted by ordinary men. In the same dialogue of Cicero, the Academic critic

[1] 'Quod beatum æternumque sit, *id nec habere ipsum negotii quicquam* nec exhibere alteri' ('De Natura Deorum,' i. 45). Thus Cicero renders Epicurus's *τὸ μακάριον καὶ ἄφθαρτον οὔτε πράγματα ἔχει οὔτε ἄλλῳ παρέχει*. Just as the English word 'trouble,' so *πράγματα* carries the meaning of either 'business' or 'anxiety.'

[2] 'De Natura Deorum,' i. 45. To exactly the same effect Philodemus says: 'Epicurus in his treatise on the Gods says we ought to pray to them, not because they will be offended if we do not, but when we think on the surpassing power and majesty of their natures' ('On Piety,' Gomperz, § 128).

Cotta says : ' Just fancy to yourself the Deity meditating on nothing else for all eternity but " It is very well with me—I am happy " (' *Mihi pulchre est,' et ' Ego beatus sum* '). . . . Can there be any excellence in that nature which only contemplates its own happiness, and neither will ever do, nor does, nor ever did, anything ?'[1] Did nothing within the heart of Lucretius protest against the theology of his sect ? No word formally admits this. All his *actual* reverence was absorbed by ' the nature of things.' His poem forces on us the feeling (yet as if he intended nothing less) of a mighty Power behind the clashing atoms—a Power working things both terrible and lovely, yet caring naught for man.

We may again listen to Cotta : ' When Epicurus takes away from the Gods the power of helping and doing good, he extirpates the very roots of religion from the minds of men. Though he says the Divine nature is most good and most excellent, at the same time he denies that there is love in God ; he does away with the quality which is most distinctive of that nature which is best and most excellent. For what is better, what more excellent, than kindness and beneficence ? When you decide that God lacks these qualities, you decide that no one, whether God or man, is dear to God—that none is loved by Him with either heart or mind. Hence it follows that not only do the Gods care naught for man, but that even they themselves care naught for one another.'

Cicero is right. It is the same thought which Browning has put in stronger and more daring words :

> ' For the loving worm within its clod
> Were diviner than a loveless God.'

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[1] ' De Natura Deorum,' i. 45, 116, 121.

CHAPTER XIII

DOES LUCRETIUS CONCEIVE THE WORLD AS AN ORGANISM? HOW DOES IT HOLD ITS PLACE IN THE UNIVERSE?

It is somewhat difficult to realize how Lucretius conceives the world. Without drawing from his words any unwarranted inference, we wish here to point out that the world as described by Lucretius fulfils most of the chief conditions of an organism, as these are laid down by himself.

In proof of this it is worth while to state fully his account of the world's gradual growth, maturity, and present decay. At the end of the second book he shows that the world was not always of the same size as now,[1] but has gradually increased. The earth and sea have grown greater, and the vault of heaven higher, according as each has been fed by matter from without. 'Since the birth-time of the world, and the first day of being of earth and sea, and the first forming of the sun, many bodies have been added from without, many seeds have been added all around, which the great universe has contributed in its tossing to and fro,[2] that from these bodies the sea and lands might increase, and from them the house of heaven might enlarge its room and raise its high dome far above earth, and that air might rise up also. For all bodies from all quarters are distributed by blows, to each thing the atoms of its own kind, and all depart to their own classes; moisture joins moisture,

[1] ii. 1105-1174.

[2] Mr. Munro thus translates 'iaculando.'

earth increases from an earthy base, and fires forge fires, and ether ether.'[1] In the course of time the world reached its utmost limit of growth and remained stationary, so long as the fresh matter absorbed by its 'life-arteries'[2] was no more than the amount of waste matter. This is Nature's law of growth. It is thus that healthy and happy young creatures increase in stature while their bodies absorb more than they lose. 'Whenever the growth of anything has stopped, the larger and the wider it is, the more particles does it scatter in every direction and lose from itself, nor is food readily transmitted into all its arteries, and the amount is not sufficient to enable so large a quantity to rise up and be supplied in proportion to the copiousness of the drains from it.'[3] Food will

[1] 'Multaque post mundi tempus genitale diemque
Primigenum maris et terræ solisque coortum
Addita corpora sunt extrinsecus, addita circum
Semina quæ magnum iaculando contulit omne;
Unde mare et terræ possent augescere et unde
Appareret spatium cæli domus altaque tecta
Tolleret a terris procul, et consurgeret aer.
Nam sua cuique locis ex omnibus omnia plagis
Corpora distribuuntur et ad sua sæcla recedunt.
Umor ad umorem, terreno corpore terra
Crescit et ignem ignes procudunt ætheraque æther,
Denique ad extremam crescendi perfica finem
Omnia perduxit rerum natura creatrix.'
ii. 1105-1117.

The constant atomic collisions have the effect of distributing this fresh matter, and enabling the atoms of each kind to join those similar to themselves, whether those of water, earth, fire, or ether. Munro thus explains the force of *plagis*: 'These blows of the atoms are, as we have so often seen before, the chief cause of the formation and conservation of things by enabling the atoms to clash and try all kinds of union until some suitable one is found.'

[2] Thus Mr. Munro translates:

'Ut fit ubi nilo iam plus est quod datur intra
Vitalis venas quam quod fluit atque recedit.'

[3] 'Quippe etenim quanto est res amplior, augmine adempto,
Et quo latior est, in cunctas undique partis
Plura modo dispargit et ab se corpora mittit,
Nec facile in venas cibus omnis diditur ei

now no longer sustain it, 'since the arteries refuse to hold what is sufficient, and Nature does not furnish the amount needful.'[1] Thus, when the world's waste comes to be greater than its fresh supplies of matter, it must ere long give way to the destructive forces ever at work, seeing that its substance is weakened by waste, and unable to resist the battering of the torrent of atoms which are eternally striking it, and which it is now unable to assimilate into its substance.[2] 'In this way, then, the walls of the great world all round it shall be stormed and fall into decay and crumbling ruins.' This process of decay, Lucretius believes, has in his own day been long at work. The earth is now growing old and feeble, he says, and is able to bear nothing but small living creatures, such as worms or insects, the earth who once brought forth the huge bodies of wild beasts. Corn crops, vineyards, fruit, and pastures, once produced by the earth spontaneously and in abundance, now scarcely repay our utter toil. The fields are niggard of their produce, and the vines are small and exhausted.[3]

Professor Sellar remarks that the weakness of ancient

Nec satis est, proquam largos exæstuat æstus,
Unde queat tantum suboriri ac subpeditare.'
ii. 1133-1138.

[1] 'Nequiquam, quoniam nec venæ perpetiuntur
Quod satis est, neque quantum opus est natura ministrat.'
ii. 1141, 1142.

Here, as so often, Epicurus follows Democritus, who holds that the world increases so long as fresh matter from without is added to it, and wastes away so soon as this process stops. ἀκμάζειν δὲ κόσμον ἕως ἂν μηκέτι δύνηται ἔξωθέν τι προσλαμβάνειν (Hippol., 'Ref.,' i. 13).

[2] Iure igitur pereunt, cum rarefacta fluendo
Sunt et cum externis succumbunt omnia plagis,
Quandoquidem grandi cibus ævo defit
Nec tuditantia rem cessant extrinsecus ullam
Corpora conficere et plagis infesta domare.'
ii. 1143-1147.

[3] ii. 1150-1174.

science lay in its perception of analogies, and that Lucretius 'trusts too implicitly to their guidance.' As 'one prominent instance' of this influence, he points out that 'Lucretius's whole conception of the creation of the world is derived from a supposed likeness between the properties of our terrestrial and celestial systems, and those of living beings.' And, again, 'in his explanation of our mundane system, he is both consciously and unconsciously guided by the analogy of the human body.' It appears to me that this comment on the passage which we have just examined is not altogether deserved. We must remember that the world, as Lucretius conceives it, is born like an animal, assimilates food and grows in bulk like an animal, and like an animal wastes away and dies. Thus it fulfils some of the chief conditions of an organism. Again, Lucretius conceives it as having pores in its outer circuit, the ether, 'as it were breathing-places all round it,' such as exist in the bodies of animals.[1] The earth (only a part of the world, be it remembered, and therefore, according to Lucretius's notion of an organism, certainly not independently possessed of life) —the earth puts forth grass and bushes just as feathers and hair grow on animals,[2] while, just as animals bear young, she has begotten from her surface all living creatures, and among them man, who was born from 'wombs,' developed on the face of the ground, and attached to it by roots. Again, how strange is the union of the earth

[1] 'Undique quandoquidem per caulas ætheris omnis
Et quasi per magni circum spiracula mundi
Exitus introitusque elementis redditus extat.
vi. 492-494.

[2] 'Ut pluma atque pili primum sætæque creantur
Quadripedum membris et corpore pennipotentum,
Sic nova tum tellus herbas virgultaque primum
Sustulit.'
v. 788-791.

In the same sense (according to Karsten) Empedocles spoke of the earth's 'shaggy body'—λάσιον δέμας. Lucretius, moreover, follows Empedocles in the opinion that the earth produced plants first, and animals afterwards (Aetius, 'De Plac. Phil.,' v. 26, 4).

with the air and ether, all which three are 'conjoined and formed into a single being from the beginning of their existence,'—a union so perfect that the weighty earth lies without sinking in the bosom of the air, which holds it up in the same way as our soul, though so light, holds up the body.[1] (We must remember that Lucretius supposes the mind to be formed chiefly out of similar elements to the air and ether. Ancient thinkers very generally identified the substance of the human mind with the ether ;[2] and though Lucretius denies that the ether is living or Divine,[3] he certainly conceives it to perform, to some extent, the same part for the earth which the nervous system does for the human body.[4])

The world is, at all events, as much an organism, according to Lucretius's own definition, as a tree,[5] perhaps not much less so than an animal. Since Lucretius supposes consciousness to accompany Organism when the latter is complex enough, we might seem to have some reason for inferring that he considers the world to be endued with some degree of consciousness. How many of the ancient thinkers of Greece, the same men whose researches culminated in the atomic system, regarded the world as living and Divine ! This conception was so widespread (partly, no doubt, because related to the old mythology) that few minds in antiquity were uninfluenced by it. We see this unmistakably illustrated in Lucretius's account of the origin of life and species, when, in spite of himself, he cannot help thinking of the earth as pro-

[1] This remarkable comparison is found at v. 556-563.

[2] We may compare the fragment of Pacuvius on the ether :

'Hoc vide, circum supraque quod complexu continet
Terram,
Id quod nostri cælum memorant, Graii perhibent æthera :
Quidquid est hoc, omnia animat, format, alit, auget, creat.'

[3] v. 140-145, quoted below.

[4] See v. 554-563.

[5] Compare i. 774 :

'Non animans, non exanimo cum corpore, ut arbos.'

ducing animals, exactly as if it were some great living creature. Lucretius insists at length that 'earth, sun and heaven, sea, stars[1] and moon' are not Divine, and are, indeed, 'so far from it that they ought rather

[1] It has been thought that Lucretius did conceive the stars as perhaps living creatures of a kind. His language is remarkable:

'Sive ipsi serpere possunt
Quo cuiusque cibus vocat atque invitat euntis,
Flammea per cælum pascentis corpora passim.'
v. 523-525.

Referring to the Stoic belief that the stars are living, Munro says: '523-525 seems at first almost a Stoical doctrine; but is merely a poetical mode of saying that the fires of the stars are drawn on by that portion of the ether which provides them the fuel or nutriment they need,' and quotes Diog. L., x. 92. Most probably this is all the actual meaning, and Lucretius is merely indulging his fancy for personification, just as Victor Hugo, in his poem on the morning-star, thus renders the impression produced by its soft and magical brightness:

'C'était une clarté qui pensait, qui vivait.'

Still Lucretius speaks of the stars as if 'living' in two other passages:

'Et tamen interutrasque ita sunt ut corpora viva
Versent.'
v. 476, 477.

'Vivant labentes ætheris ignes.'
i. 1034.

Of course the passage v. 110-145 would seem conclusive against such a doctrine:

'Tanto magis infitiandum
Totum posse extra corpus formamque animalem
Putribus in glebis terrarum aut solis in igni
Aut in aqua durare aut altis ætheris oris.
Haud igitur constant divino prædita sensu,
Quandoquidem nequeunt vitaliter esse animata.'
v. 140-145.

Yet, according to Aetius ('De Plac. Phil.,' v. 20), Epicurus held that the heavenly bodies are living. At all events, the stars are formed of atoms of the same kind as those forming one chief element of the soul—namely, atoms of fire. What consequences this, according to Epicurean psychology, might imply, it is hard to say. Perhaps Epicurus did not 'dogmatize' as to this point.

to be thought a notable instance of what is destitute of vital motion and sense.' 'The mind cannot come into being,' he says, 'without the body, nor can it exist far from sinews and blood.' Thus Lucretius seems to anticipate Clifford. Because he can find no trace of a nervous system in any of the elements, he decides that it is not possible for Intelligence to dwell in any of them. Mind, he says, is found only in the living body, and therefore it cannot exist 'outside of the body and the living form altogether, in crumbling clods of earth, or in the sun's fire, or in water, or in the high borders of ether. Therefore, these things are not possessed of Divine sense.'[1]

But all these elements, we must remember, are in Lucretius's conception only parts of a whole—of one great Organism, the World, and he has before insisted that Life and Consciousness cannot exist in the parts of an Organism separately, but only in the whole.[2] Therefore he may without inconsistence[3] have conceived the world as, to a certain degree, a living creature.[4] We

[1] v. 110-145. [2] ii. 904-914.

[3] While Aetius, 'De Plac. Phil.,' v. 20, says that Epicurus believed the heavenly bodies to possess life, on the other hand, he asserts that Epicurus denied life to the world. 'Democritus, Epicurus, and all who believe in atoms and void, hold that the world is neither living nor is governed by Providence, but by "Nature" which is without intelligence (*φύσει δέ τινι ἀλόγῳ*).'—'De Plac.,' ii. 3, repeated in Stobæus, 'Ecl. Phys.,' 21, 3: *οἱ μὲν ἄλλοι πάντες ἔμψυχον τὸν κόσμον καὶ προνοίᾳ διοικούμενον. Λεύκιππος δὲ καὶ Δημόκριτος καὶ Ἐπίκουρος οὐδέτερα τούτων, φύσει δὲ ἀλόγῳ, ἐκ τῶν ἀτόμων συνεστῶτα*, this meaning (*τὸν κόσμον*), *ἐξ ἀτόμων συνεστῶτα, φύσει ἀλόγῳ* (*διοικεῖσθαι*). The passage shows how ancient philosophers regarded the atomic theory—as essentially and of necessity atheistic. But whatever Lucretius's professed creed as an Epicurean convert may be, the world was something greater to him, in virtue of his gift of poet and of all therein implied, than it was or ever could have been to Epicurus.

[4] See, for instance, his statement that, though sun and moon appear to us independent bodies moving of themselves, they do but move as certain members of the human body may move, while at the same time the others are at rest (v. 476-479).

merely point out here that Lucretius describes the world as an organism of a kind.[1]

Again, how does the world hold its place in the universe? This is a question which one cannot help asking. At first sight it would appear that Lucretius conceived the world to be eternally falling through infinite space,[2] and thus, though not absolutely at rest, to be relatively so. Lucretius will not hear of any such principle as gravitation towards a centre of the universe. 'Through centre or no-centre alike heavy bodies must

[1] Epicurus's language might sometimes warrant a similar conclusion, as when he says that the world might perish after the fashion of a living creature, or of an animal. Ἐπίκουρος πλείοσι τρόποις τὸν κόσμον φθείρεσθαι· καὶ γὰρ ὡς ζῷον καὶ ὡς φυτὸν καὶ πολλαχῶς (Stob., 'Phys.,' p. 414). But perhaps these words merely mean that Epicurus, as his manner so often was, left this subject too an open question.

[2] See i. 1052-1082, the text of which is unfortunately very imperfect. Munro's note is as follows: 'It is the Stoics, doubtless, whom Lucretius here mainly attacks, though the Peripatetics and some others held a similar doctrine; they taught that there was but one finite world surrounded by an infinite void; and that the world was upheld in the way which Lucretius so clearly explains here, by things pressing to the centre: the earth resting ἰσοκρατῶς, in the words of Zeno in Stob., "Ecl.," i. 19, 4, at about the centre of the κόσμος, in the same way that the whole finite κόσμος remains fast in the infinite void. Had Epicurus, while retaining his conceptions of infinite space and matter and innumerable worlds and systems, seen fit to adopt this Stoical doctrine of things tending to a centre, and so to make his atoms rush from all sides of space alike towards a centre, he might have anticipated the doctrine of universal gravity.' Again, Mr. Munro remarks on ii. 251-293: 'In a curious memoir of the Berlin Transactions for 1782, by G. L. Le Sage, called "Lucrèce Neutonien," the author ingeniously argues that if Epicurus had had but a part of the geometrical knowledge of, say, his contemporary Euclid, and conceptions of cosmography the same as those of many then living, he might have discovered the laws of universal gravity, and not only the laws, but, what was the despair of Newton, its mechanical cause. Had he supposed the earth to be spherical, and made his atoms move in directions perpendicular to the surface of a sphere—that is, towards its centre—he might not only have proved the law of the inverse square of the distance, but have demonstrated the cause of that law.'

move downwards.' They cannot rest upon void, and it is against their nature to move upwards.[1] This explanation is the one approved by Lange.[2] Though it is the easiest and certainly the most apparent, still, it is not the one most consistent with the doctrines of the Epicurean system. In the first place, it must be remembered[3] that Lucretius conceives the world to be exceedingly buoyant, since its heavy core, the earth, is surrounded by an outer envelope of ether and air, which, by their extreme lightness, diminish the action of gravity upon it, and 'cause the weight of the earth gradually to pass away and be lessened.'[4] In the second place, as we have seen, Lucretius conceives the world to be kept in being 'by blows' (*plagis*)—that is to say, by the constant supply of atoms rising up from below and striking upon it from without. But *plagæ*—the blows of the atoms—effect something more than this. Lucretius has made no positive statement on the point; but from one or two passages it may be inferred[5] that these blows of the

[1] Compare the argument at ii. 184-215, immediately preceding the proposition as to the action of gravity. Lucretius here refutes the Aristotelian conception of a centrifugal upward motion.

[2] 'History of Materialism,' vol. i., c. 3.

[3] Chapter VII., § 4.

[4] 'Terraque ut in media mundi regione quiescat,
Evanescere paulatim et decrescere pondus
Convenit.'
v. 534-536.

[5] In the passage above referred to—

'Illud in his rebus longe fuge credere, Memmi,
In medium summæ, quod dicunt, omnia niti,
Atque ideo mundi naturam stare sine ullis
Ictibus externis'—
i. 1052-1055.

when we remember that Lucretius has just proved the necessity of matter rising from beneath, and that he is here refuting the Stoic doctrine that the world is kept in the centre of the universe by the pressure of all things towards that centre, it is difficult to resist the inference above expressed. It is evident that Lucretius has left this section of the poem unfinished, if not incomplete.

atoms, constantly rising up from beneath and striking upon the earth, have the effect of keeping it suspended in its place in the universe. When we remember that Lucretius conceives the world as a whole to be exceedingly buoyant, and the natural gravity of the earth in this way to be greatly reduced, it seems clear that he supposed the upward impulse, given by the atoms ever ascending to feed the world, to be enough entirely to counteract the action of gravity upon it, and thus to keep it in its place, floating, as it were, in one spot amid the infinite sea of matter.

CHAPTER XIV

THE ROOTS OF EPICUREANISM : DEMOCRITUS

To find the actual root of the thoughts embodied in the *De Rerum Natura* we must go back beyond Epicurus to the remarkable man from whom he derived the most distinctive part of his system, not merely his atomic theory and physics, but also most of what is profound and distinctive in his ethics. Democritus, one of the most individual figures of Greece, both as a thinker and as a man, was born in Abdera, an Ionian colony on the coast of Thrace, in or about the same year as Socrates, B.C. 468.[1] He is said to have lived to a great age. He boasts of having travelled much in pursuit of knowledge, 'having seen more lands and climates, and having conversed more with learned men,' than any of his contemporaries; nor was he a man given to pretentious statements. Having consumed his large private fortune in travels in Egypt and the East, he returned to his native city, and lived there, greatly honoured by his townsmen, who are said to have restored to him the wealth he had lost. He was a man of great modesty and disinterestedness, who did not care for fame. It is told that he visited Athens and conversed with Socrates, but never made himself known to him. The words quoted by Diogenes, 'I came to Athens, and no one knew me,' do not mean merely that his name and personality were unknown to the Athenian philosophers. He was, as we shall see, a man earnest of temper and pure of spirit, in

[1] 'Or still earlier,' Zeller (edition of 1892, p. 840). Aristotle treats him as preceding Socrates in philosophy.

no less degree than he was absorbed in the study of Nature.

Lucretius speaks of him with reverence when, on one occasion, he is compelled to differ with 'the revered judgment of the worthy Democritus':

'Democriti quod sancta viri sententia ponit,'[1]

and this feeling was not confined to Epicureans. Democritus challenges comparison with Aristotle, both by the enormous range of his knowledge, covering physics, mathematics, ethics, and literature, and also by his acuteness and logical faculty. Aristotle, indeed, often quotes from him, and speaks with high praise of his system.[2] But in point of style there is no comparison, for that of Democritus is conspicuous by its vigour, originality, and poetic beauty. Cicero praises at one time the beauty of his language and the artistic treatment of his subject, at another the clearness of his exposition. Elsewhere Cicero places him and Plato side by side, and points out that the writings of both, on account of the 'swift movement' of their style (its force and passion, as we should say) and their brilliant command of imagery, are essentially poems in prose.[3] Plutarch finds something 'inspired and sublime' in his style, and the critic Dionysius places him side by side with Plato and Aristotle in the same rank among writers on philosophy as Sophocles among the tragic poets.[4] It is strange that these high qualities, so well appreciated by noted critics, have not availed to preserve any of his writings. Of the works which used to bear his name, the most im-

[1] iii. 371.

[2] See Zeller, vol. ii., p. 300 (Eng. trans.), and the references there given.

[3] Cicero, 'De Orat.,' i. 49; 'De Divin.,' § 133; and 'Orator,' § 67. In the last passage the words 'quod incitatius fertur et clarissimis verborum luminibus utatur' may be better understood by comparing 181, 182, 228.

[4] Plutarch, 'Quæst. Conv.,' v. 7, 6; and Dionysius Halic., 'De Compositione Verborum,' c. 24.

portant was called 'The Great World,' but it is now believed that such a book was written by Leucippus.[1] Democritus wrote a work called 'The Little World,'[2] and he is said to have applied the last name to man.[3]

Plato, who never names Democritus, refers in the 'Philebus' to certain reputedly profound natural philosophers who held that 'pleasures are merely the avoidances of pain.'[4]

Plato owns that 'no unnoble nature' underlies their opinion and their extreme dread of the seductions of pleasure.[5] It is thought that he refers here to Democritus. Diogenes tells a story, circumstantially enough, that Plato wished to burn all the copies of Democritus's writings, but was dissuaded by certain friends.[6] This anecdote, if true, must refer to Plato's intolerant old age, when the 'Laws' were written, after he had outgrown the Socratic love of free inquiry. Plato must have looked on Democritus's system just as the scholastic theologians looked on Gassendi's atomic theory—as necessarily atheistic. Following the Socratic view of the world, according to which its phenomena are produced or permitted by the Gods working according to an intelligent purpose, Plato must have looked with supreme disapproval on a system which conceived the world and all its life as the outcome of purposeless atomic movement.[7]

[1] On the authority of Theophrastus. Diog. L., ix. 46.

[2] The *μέγας διάκοσμος* and the *μικρὸς διάκοσμος*. The word *Diacosmos*, meaning 'the ordered world,' was used in its verbal form by Anaxagoras to express the task of Mind in bringing the world into being out of formless matter.

[3] Zeller, iii., p. 255, note 2.

[4] 'Philebus,' p. 44.

[5] *φύσεως οὐκ ἀγεννοῦς* ('Philebus,' p. 44).

[6] Diog. L., ix. 8.

[7] Campbell thinks that Democritus and the atomists may be referred to in Plato's 'Theætetus' and 'Sophistes,' where Socrates argues against those philosophers who believe in nothing except 'what they can grip with their hands' ('Theæt.,' 155, E). The atoms, of course, though invisible, are conceived to possess the properties of objects of sense. Yet Plato describes these as 'utterly illiterate,' a phrase which he could not have used of

But from the standpoint of Aristotle, who regards the Ideas, the Divine thought, as everywhere immanent in matter, it was possible to look on Democritus's system in a very different light.

The followers of Democritus, of course, regarded with equal disapproval the Platonic Deity, the Demiourgos, or gigantic 'Divine Craftsman,' who builds the world from without. 'How did your Plato come by eyes of the mind,' says Velleius, 'wherewith to see that workshop of such tremendous toil in which he makes the world be put together and built by God? What mode of building, what tools, what levers, what engines, what servants, did He employ in so vast a work? How was it possible for air, fire, water, earth, to obey Him and submit to His will?'[1]

Epicurus borrowed from Democritus not only his atomic theory and his cosmogony: his psychology, with its central doctrine of 'Images,' is also derived from him. Even his strange theology is developed from that of Democritus; in logic his characteristic doctrine of 'general notions'[2] is thought to be found in germ in Democritus.[3] But in ethics, too, the influence is marked. From many fragments of Democritus which are preserved, it is plain that, in the inner spirit of his ethics, Epicurus was profoundly influenced by his teaching, however much he may have modified it.

In the case of both of them the deliverance from

Democritus. May he not refer to Sophists of the coarser type who had adopted atomic materialism? The same scholar holds that we may with yet more reason identify as Democritus's the opinion of the Eleatic Stranger in the 'Sophistes' who defines 'Being' as that which possesses the power either to act on another, or to be acted on by another, so that, in fact, Being 'is nothing else but Power,' the materialists thus rising from the idea of Matter to that of Force.

[1] The Epicurean spokesman in 'De Natura Deorum,' i. 18.

[2] *πρόληψεις.*

[3] See Hirzel, 'Untersuchungen zu Cicero's Philosophischen Schriften,' vol. i., 1877, p. 118, *ff.*

superstitious fears acted as a great motive for their researches into Nature, although to Democritus this was but one motive among many. One of his books was entitled 'On Hades,' and in this he is said to have examined the legends of those who, after seeming to die, revived and told what their spirits had seen in the other world.[1] In this work, no doubt, he set forth the falsehood of the popular beliefs regarding sufferings to be endured in the life to come. 'Some men,' he says, 'not knowing that the nature of man is mortal and is dissolved, and also from a consciousness of the miseries of life, spend their whole lifetime wretchedly in agitation and fear, inventing falsehoods concerning the time after death.'[2]

Here is the basis from which Epicurus's definition of happiness has been evolved. 'The chief good,' Democritus asserts, is "cheerfulness," this, however, not being the same as "pleasure" (which some who have misunderstood him interpret it to mean), but he understands by it a condition of the soul in which it lives calmly and steadfastly, disturbed by no fear or superstition or any other passion.[3] Again, he says: 'Tis

[1] Democritus seems to have got rid of the miraculous element in such legends by explaining them on physiological grounds. Life had not in such cases entirely departed from the body, but was, for the time being, overpowered by a blow or some other cause, yet the bonds fastening life to the brain still held fast, and the heart preserved the animal heat in its inmost recesses, so that the life which seemed extinguished could still be called back. This is exactly how Lucretius would have explained the matter (see his third book). Mullach's restoration of this passage from Proclus's commentary on the legend of Er in Plato's 'Republic' seems trustworthy (see his book on Democritus, Berlin, 1843, pp. 113-117). [2] Mullach, Fragm., 119.

[3] The terms are worth noting: τέλος δ' εἶναι τὴν εὐθυμίαν . . . καθ' ἣν γαληνῶς καὶ εὐσταθῶς ἡ ψυχὴ διάγει (Diog. L., ix. 45). γαλήνη denotes 'the sea in a state of calm,' εὐσταθής weather which is 'settled.' Stobæus (ii. 76) tells us that Democritus 'calls cheerfulness also by the names of "well-being" (εὐεστώ) and "harmony" and "symmetry" and "tranquillity" (ἀταραξίαν).' This last is Epicurus's most characteristic term for his ideal of life.

best for a man to live with as much cheerfulness and as little vexation as he may, and the condition of this is that he set not his pleasure in mortal things' ; ' we must choose not every pleasure, but that which is conjoined with honour and right'; ' pleasure lies for men neither in body nor in wealth, but in right disposition, and in fulness of understanding.'[1] Happiness consisted for Democritus in cheerful calm, and that calm is to be attained only by mastering the passions. Neither flocks, nor gold, nor any external goods can make us happy : ' the seat of the Dæmon [Happiness] is the soul.'[2] It is knowledge, an open mind, and the glad use of our intellectual faculties which help us to obtain happiness. Democritus places the mind high above the body ; he ignores too much the claims of the body and the necessary share which its proper training plays in developing character. Epicurus, indeed, ignores this truth still more than he.

Again, we seem to hear the very voice of Epicurus or Lucretius in Democritus's sayings on ambition — for instance : ' What things the tabernacle[3]'—*i.e.*, the body—' requires, all men may obtain easily without toil and hardship ; but whatever needs toil and hardship, and saddens life to obtain it—'tis not the body which desires such things, but the perversity of the mind.' ' The craving after wealth, if a man can never have his fill, and so set bounds to it, is far more painful than the utmost poverty, for the greater the craving, the greater is the need it begets.' ' Fortune supplies a costly table, but moderation gives one which is independent '—that is, it contents us with what we are able to procure. ' Fortune gives mighty gifts, but is inconstant, while Nature '—that is, our natural gifts, which can supply our needs, if not artificial—' is independent.'[4] Thus we find

[1] Fragm. 2, 3, 5. [2] Fragm. 1.

[3] Literally ' the tent ' or ' hut,' τὸ σκῆνος. This is Democritus's distinctive term for the body (Fragm. 22, 127, 128, 210). St. Paul uses the same metaphor (2 Cor. v. 1).

[4] Fragm. 22, 66, 36, 15. See also 38, 39.

those terms, which are the very watchwords of Epicurus's ideal of life—'independence' (or 'self-sufficingness') and 'tranquillity'—already fixed in Democritus.

There is, moreover, a healthy, open-air tone in Democritus which Epicurus lacks. 'To desire aught immoderately is the part of a child, not of a man.' 'Excessive desires of any one thing blind the eye of the soul for all other things.' ''Tis a noble thing to check the wrong-doer, or, failing this, not to join him in wrong-doing.' ''Tis necessary either to be good or to imitate the good.' 'More men become good by rule and discipline[1] than by nature.' 'To conquer oneself is the foremost and noblest of all victories; but to be overcome by oneself is the most disgraceful and basest of things.' 'We must abstain from offences, not out of fear, but from a sense of duty.'[2] Is this sense of duty ever named or appealed to by Epicurus? Does he not rather scoff at such a notion? Other sayings lift up Democritus to a height to which Epicurus did not climb. 'Speak not, neither do that which is base, even though thou art alone; but learn to revere thyself far more than all the rest.' Why does a man of such genius as Democritus speak of revering 'himself'? Certainly not merely because he possesses an intellect. It can only be because he is conscious of something within him akin to the Divine, whether his system acknowledge it or not—something which aspires towards the good and is saddened by fallings away towards the evil. It is true that Democritus does not relate his ethics to his theology, though we find a sentence like this: 'The Gods love those only who hate wrong-doing.'[3]

Very characteristic of the cheerful spirit of the man is the saying, 'A life without holidays is a long journey without an inn.' Again: 'Travel teaches independence, for the barley-cake and the mattress of leaves are sweetest

[1] ἀσκήσει. This word denotes in particular the 'training' of the athlete.

[2] Fragm. 98. See also 100, 101.

[3] Fragm. 107.

remedies of hunger and fatigue.'[1] The last maxim is thoroughly Epicurean in its asceticism; indeed, Epicurus has adopted the 'barley-cake' and the 'mattress of leaves' in his own ascetic ritual, but there is a cheerier, braver note in the saying of Democritus.

Other maxims are thoroughly anti-Epicurean: 'Democritus exhorts us to learn thoroughly the art of war,[2] on account of its great importance, and to pursue those labours from which great and glorious things are born for mankind.' 'All labours are sweeter than ease, when men obtain, or know that they will obtain, the things on account of which they labour.' 'We must defend with all our power those to whom wrong is being done, and must not be remiss in this, for so to do is just and good, while the opposite is unjust and base.' 'Boys who neglect of their own accord to apply themselves to exertion can neither learn their letters nor literature, nor to vie with others for the mastery, nor can they acquire that quality which, more than all the rest, is the basis of virtue, namely, the sense of shame and of honour, for it is from such exertion specially that the sense of honour is wont to spring.'[3] Here is an ideal of living and of duty to one's neighbour more manly and active than Epicurus's, noble as that is. And does Epicurus ever mention the word 'honour' except with a sneer? 'Epicurus,' says Cicero, 'scoffs at our terms "the honourable" and "the base," and says that these are but "empty sounds," mere words with which we busy ourselves,'[4] and many other passages are to the same effect.

Hirzel says that both Democritus and the Sophists assigned comparatively little importance to the will as regards questions of conduct.[5] As regards Democritus, nothing can be more incorrect. Both expressly and in the whole spirit of his ethics Democritus asserts and

[1] Fragm. 32, 38.

[2] From Plutarch, 'Adv. Colot.,' 1126. Bernardakis, in his edition (Leipzig, 1895), corrects to πολιτικὴν, 'the art of statesmanship.'

[3] Fragm. 85, 87, 202, 235.

[4] 'Tusc. Disp.,' v. 73.

[5] 'Untersuchungen,' vol. i., p. 162.

emphasizes the importance of Will. 'Goodness is not merely to refrain from doing wrong, but not even to will it.' 'Not that man is benevolent who looks to a return, but he who has chosen to do a service.' 'Men have fashioned for themselves a phantom called Fortune in order to excuse their own imprudence. Fortune can make but little fight against wisdom, and the soul which is sagacious and keen to discern guides most things in life right.' 'From the same source whence good things come to us we are like to experience evil things, too, but we may escape these evils. Thus, for example, deep water is in many ways useful, but, again, it is harmful: for there is danger of being drowned in it. Accordingly a remedy has been discovered—namely, to teach men to swim.' 'Nature and education are similar; for truly education transforms man, and in transforming creates in him a new nature.'[1]

There is in Democritus's ethics no tinge of Fatalism, whereas in the system of Epicurus, in spite of his insistence on our Free-will, there is in the background an essential element of what is *practically* Fatalism, a conviction that the forces of the world are too strong for the average man to cope with.

Democritus was commonly said to have explained everything by Necessity: 'Nothing happens by chance, but everything by a reason and of necessity.'[2] This 'Necessity' must not be confounded with blind chance: it means simply the laws followed by the atoms in their motion, collision, and recoil. Final causes Democritus ignores. He is said to have opposed the great doctrine of Anaxagoras that Mind organized matter and produced the world.[3] A man of such keen scientific instincts as Democritus doubtless saw, as Lord Bacon did, that to mix the search for final causes with inquiries into Nature is to render such inquiries both misleading

[1] Fragm. 109, 160, 14, 12, 133.

[2] οὐδὲν Χρῆμα μάτην γίγνεται ἀλλὰ πάντα ἐκ λόγου τε καὶ ὑπ' ἀνάγκης.

[3] Diog. L., ix. 45.

and barren. This is the reason why Lord Bacon, forty years before Gassendi,[1] singled out Democritus from all the philosophers of Greece, and preferred his system to that of Plato and Aristotle, on the ground that it was 'much more solid, and went deeper into Nature with regard to physical causes' than did either of these.[2]

Did Democritus conceive of any admixture of intelligence within his Necessity? It is hard to say. According to Aetius—no very precise writer—'Parmenides and Democritus say that all things happen by Necessity: and the same Necessity is also Fate, and Justice, and Providence, and the maker of the world.'[3]

How did Democritus account for the phenomena of life? He held that the most perfect form of matter is fire, and he identified the soul with this element of fire. As Aristotle tells us, 'Democritus held the soul to be a kind of fire and heat. For as, according to Democritus, the forms of the atoms are, like the atoms themselves, unlimited, he declares that those which are spherical in shape constitute fire and soul. Leucippus holds the same view. The reason, they assert, why the soul must be formed of spherical atoms is because atoms of such a shape are best able to penetrate through everything, and to set other things in motion when they themselves are moved, for they assume that it is the soul which is the cause of motion in animals. . . . The soul possesses the faculty of movement by reason of the smallness of its parts and of their peculiar form. Now, of all forms the most mobile is the spherical.'[4]

Democritus held, says Aristotle, that 'there is in the air a great number of such particles which Democritus calls Reason and Soul,' and this is why we inhale soul or reason from it.[5] Cicero says that 'Democritus called

[1] Lord Bacon's 'Advancement of Learning' appeared in 1605, Gassendi's commentary on Diogenes not till 1649.

[2] See Chapter XVI.

[3] 'De Plac. Phil.,' i. 25, 26

[4] 'De Anima,' i. 2. §§ 3 and 12.

[5] 'De Respiratione,' c. 4.

these 'elements of intelligence which are in the universe' —viz., the finest spherical atoms—'by the name of Gods.'[1] Later writers, such as Cyril, declare that Democritus believed in a soul of the world consisting of the round fire-atoms, 'which, moreover, he identified with Reason.' Zeller holds this last statement to be a mere inference, seeing that Democritus's Divine element is 'but the substance of souls'—viz., the fiery atoms scattered through the world. 'This,' he says, 'is very different from the one force that moves the universe, in the sense of Anaxagoras's or Plato's world-soul. Democritus regarded the spiritual not as a world-building force, but only as one form of matter among others. He does not, like Empedocles, hold that intelligence exists in all things, and is an internal property of the elements.'[2]

Democritus assumes, in fact, that self-motion is an essential attribute of those atoms which have the finest and most spherical form, and assumes, further, that consciousness is a necessary consequence of the peculiar mobility of these atoms. It is to be noted that Democritus conceives fire to be different in its atomic constitution from all other substances. In these there is a mixture of atoms of different shapes, whereas fire is composed solely of atoms of one kind.[3]

By a telling comparison Aristotle ridicules the absurdity of thus explaining the conscious movements of living beings. According to the fable, Dædalus made statues of wood which moved and walked as if alive. The comic poet Philippus[4] attempted to explain the matter by suggesting that this could be done simply by pouring quicksilver into the interior of the wooden figures. 'Yet this explanation,' says Aristotle, 'is no worse than that of Democritus. He tells us that the

[1] 'De Natura Deorum,' i. 43.
[2] Zeller, vol. ii., pp. 262-265 (Eng. trans.).
[3] See references to Aristotle in Zeller, vol. ii., p. 234 (note).
[4] 'De Anima,' i. 3, § 9, 10.

spherical atoms contract the whole body and move it because it is their nature never to be at rest.' How, then, can the same elements allow the body at any time to be at rest? But, he continues, what is far more important, 'the soul appears to move the body not in this manner, but through the agency of will and thought.'[1] This comparison of Aristotle's brings home to us the childishness of such a mechanical explanation of the movements of a human being. So acute a man as Democritus must have understood (if, indeed, he ever actually faced the problem) that no mere pressure of atoms on any organ could be enough to explain sensation. He seems, however, never to have stated the problem to himself.

As to the nature of knowledge, Democritus seems at first sight to confuse thought with perception by sense. This, however, is not the case. He taught, we are told,[2] that there are two kinds of perception—'the genuine' and 'the dark.' Now, these are the forms of the dark—namely, sight, hearing, smell, taste, touch; but the genuine is concealed (or 'separated'[3]) from the other. 'Then,' says Sextus, 'he goes on to prefer the genuine to the dark,' adding, 'when the dark is no longer able to see anything on a smaller scale, nor yet to hear, nor smell, nor taste, nor perceive by touch anything smaller, but [we must have recourse (?)] to a more subtle faculty.' Here the fragment stops, but the conclusion must be, 'Where the senses entirely fail us, true knowledge is yet possible'—that is to say, the senses bring their several reports to the mind, and it is the function of the mind to review and correct these and to form its judgment from them.

Thus we are not surprised to be told by Plutarch that Democritus 'expressly and at length combated the scepticism of Protagoras.' Moreover, Democritus has

[1] 'De Anima,' i. 3, § 9, 10.
[2] Sextus Empiricus, book vii., § 139.
[3] Mullach suggests *ἀποκεκριμένη* for *ἀποκεκρυμμένη*.

censured in strong and contemptuous words[1] the Eristics of his time, Sophists who 'held that no opinion is true in itself, but that each is true for the man who thinks it, so that no proposition can be stated of which the opposite would not be equally true.'[2] The later Greek sceptics point out the essential difference between the position of Democritus and their own, while Aristotle bears testimony that 'of all the pre-Socratic philosophers, Democritus concerned himself the most with the definition of general conceptions.'[3]

Thus we see that Democritus cannot be ranked along with Protagoras and the Sophists. He was not 'a sceptic who despaired of knowledge.'[4]

Aristotle, who studied Democritus closely, makes an important claim for him in the 'Physics.' Nature, he there says, consists of both Matter and Form, and it is the business of the natural philosopher to consider both these qualities as united in one substance. Were we to judge by the example of the Greek philosophers before Socrates, he continues, it might seem to be the business of the natural philosopher to discuss Matter alone, with this exception, however, that '*to some slight extent Empedocles and Democritus dealt with the doctrine of Form and with general conceptions.*'[5]

It is worth noting that the doctrine of Forms can be traced, if only in germ, in the mind of the great founder of the atomic theory.

Doctrines by no means consistent with one another are attributed to Democritus on good authority.[6] Doubtless he was too great a thinker to aim before everything

[1] Fragm. 145. [2] Zeller.

[3] See passages in Zeller, p. 276 (note 2) (Eng. trans.).

[4] His saying, 'In reality we know nothing: truth is at the bottom of the deep,' refers probably to the unreliability of the senses (Diog. L., ix. 72).

[5] ἐπὶ μικρὸν γὰρ τι μέρος Ἐμπεδοκλῆς καὶ Δημόκριτος τοῦ εἴδους καὶ τοῦ τί ἦν εἶναι ἥψαντο ('Physics,' ii. 2).

[6] The following sentence deserves to be quoted: 'Sweetness, bitterness, warmth, cold, colour, exist only in opinion; in reality

else at building a system which should offer no contradictions. A letter of Augustine's contains these words: 'Democritus is also said to differ from Epicurus regarding questions of physics in the following respect: the former thinks that there is present in the collisions of the atoms a force partaking of life and spirit,[1] and it is on account of this force, I believe,' he continues, 'that Democritus is able to speak of the images of the Gods and "the elements of mind"' —*i.e.*, the finer atoms— 'in the universe, and the "living images which can do us either harm or good," as all endued with divinity. Epicurus, on the other hand,' he goes on, 'assigns *nothing except atoms* as his first-beginnings.' The passage following shows that Augustine was struck by the contrast in the spirit and in the attitude towards Nature of the two philosophers.

Another writer tells us, 'Democritus says that all things partake, in some degree, of life.'[2] It is also said that he 'attributed both intelligence and perception to plants.'[3]

Doubtless the reaction of so powerful an intellect against the teaching of polytheism both in ethics and as to Nature carried Democritus to an extreme of recoil from the religion of his day. The notion of Gods interfering with Nature and working miracles at will must have been repugnant to his whole habit of mind. Moreover, he must have felt as keenly as Xenophanes that the acts which the popular belief ascribed to the Gods were 'all

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nothing exists but the atoms and empty space' (Sextus Empiricus, vii. 135).

[1] 'Inesse concursioni atomorum vim quandam animalem et spiritalem' (Epist. 118).

[2] The compiler of the 'Opinions of the Philosophers,' a work formerly attributed to Plutarch ('De Plac. Phil.,' iv. 4).

[3] Pseudo-Aristotle ('De Plantis,' i. 815*b*), who says that he shared this opinion with Anaxagoras and Empedocles. Plutarch says that Democritus held, along with Anaxagoras and Plato, that plants are 'animals whose habitat is in the earth' ('Quæst. Nat.,' i. 1).

those things which are counted a disgrace and a reproach among men'; and along with Heraclitus that 'the mysteries into which men are solemnly initiated are unholy,' and that, 'if the Bacchic procession and the lewd Phallic hymn were not in honour of the God, the worshippers would be held to act most shamelessly.'[1] If the works of Democritus were preserved, probably we should find that the saying of Epicurus, 'Not he is impious who discards the Gods of the many, but he who accepts the notions entertained by the many regarding the Gods,' was borrowed with little change from him.

Strange as Democritus's theology was, it does not preclude the notion of Divine influence, as, for instance, though he seems to deprecate prayer to the Gods, yet he speaks of 'praying' (or 'wishing for') 'good Eidola.' Again, he attributes a kind of inspiration to the poet. 'Most beautiful is all that the poet writes with his soul possessed by some sacred inspiration.'[2] Again, of Homer he says: 'Homer, endowed with a God-like nature, framed a world' (*kosmos*) 'of poesy, treating of every theme.'[3] According to Democritus, the well-ordered world framed by the poet's imagination cannot take form without some inspiration from a Higher Power. Did none, then, go to the making of the wondrous actual world after which the poet's is fashioned?

In Democritus we recognize not merely a keener intellect, but also, in almost every way, a nobler, fuller, and stronger nature than that of Epicurus. It is only the passionate sympathy of Epicurus with the suffering, with the ignorant, and those who through their ignorance are deceived and terrified, with all who are sore beaten by the storms of life, which alone relieves a system hardly deserving to be called a philosophy.

[1] Ritter and Preller, 'Xenoph.,' 82, 'Heracl.,' 40 and 40*c*.
[2] Mullach, 'Fragmenta Varii Argumenti,' 2, 3.
[3] *Ibid.*

CHAPTER XV

EPICURUS AS AN ETHICAL TEACHER

We have seen how Lucretius reverenced Epicurus as a man of science, a fearless thinker, and a thorough-going enemy of religion; but to Lucretius Epicurus was far more than this; he was also an unrivalled moral teacher.

'Just as bees sip of everything in the flowery meadows, so do we feed upon all the golden sayings in thy pages, O thou glorious one!—sayings most worthy alway of everlasting life.'

In language which seems to us extravagant, but which, nevertheless, comes from the heart, he says:

'He was a God, a God, illustrious Memmius, who first found out that rule of life which is now called "wisdom," and who by his skill rescued life from so mighty billows and so deep a darkness, and moored it in so calm an anchorage, and under so bright a light.' The Deities whom men worship gave them certain blessings, such as corn and the vine, which we could yet live without, 'but man cannot live happily unless the heart be cleansed'[1]—that is, unless it is delivered from the superstitious terrors, the ambition, the excessive passions and desires that by nature possess and torment the soul. What are the deeds of Hercules, he continues, to those

[1] 'At bene non poterat sine puro pectore vivi.'

The common rendering 'without a pure heart' is quite misleading; compare Hor., Ep. i. 18, 103: 'Quid pure tranquillet' ('what gives unmixed tranquillity'). 'Per se puramque' (Lucr., i. 506).

of Epicurus ? We can shun the haunts of monsters such as that hero killed, but, unless the heart has been purged, what battles, what dangers, must we encounter, whether we choose or not ! We are a prey to care, to fear, to lust, to luxury. ' He, therefore, who shall have conquered all these, not by arms but by his words, and driven them out of the soul—shall not this man be held worthy to be ranked among the Gods ?'

' Epicurus cleansed the breasts of men by his truth-speaking precepts, and set limits to all desires and to fear, and explained what was the chief good, and pointed out the road thither.'[1]

I wish in this chapter to show briefly what were the features of Epicurus's life and ethical teaching which inspired such heart-felt reverence and admiration. The strongest testimony to the character and gifts of Epicurus is the depth of his influence over Lucretius. I know no other instance of a man of high genius so completely possessed and dominated by another mind, and this is the more remarkable because Lucretius did not come under the influence of Epicurus's marvellously attractive personality, but lived three centuries after him.

In addition to the many quotations from Epicurus's ethical treatises given by Cicero, Seneca, Plutarch, and others, further light is thrown on the subject by two recent discoveries. One is a collection of maxims by Epicurus, most of them new to us. These were not deciphered from some papyrus found in an Egyptian tomb, but, strange to say, were discovered by Dr. Wotke in a manuscript volume in the Vatican, which has, during this century, been handled, examined, and copied from by many scholars, containing, as it does, Xenophon's ' Memorabilia,' Epictetus's ' Enchiridion,' and the only complete manuscript existing of Marcus Aurelius : another instance that nowhere can anything be so effectively hid as close at hand. The collection is headed ' The

[1] ' De Rerum Natura,' iii. 10-13 ; v. 1-53 ; vi. 24-26.

Exhortation of Epicurus,' a title which implies the notion of a ' personal message ' to the reader. There is, indeed, a directness in these sayings which is very unlike the style of ordinary philosophical writings. They are drawn, as Usener shows, chiefly from a collection of sayings derived from the letters of Epicurus and his three chief disciples,[1] which was at one time widely circulated, and also from Epicurus's little catechism of leading truths, preserved by Diogenes Laërtius. This short selection has been made, as Usener believes, by a Stoic. It omits the definition of pleasure which forms so essential a part of Epicurus's system.[2]

The other discovery is of so unusual a kind, and throws so much light on the fervour with which Epicureans spread the doctrines of their sect, that it is worth describing with some detail.

In the year 1842 two English explorers, Mr. Spratt and Mr. Forbes, discovered in the heart of Lycia the ruins of a great Greek city, which they identified as Oinoanda. It covered the top of a spur which the Lycian highlands send out northwards ere they sink into the plain. Fragments of mighty walls were still standing ; in the centre of the ruins a paved square, surrounded by pedestals of fallen pillars, marked the ancient agora, or market-place ; and, overgrown and hidden by trees and bushes, they found at last the theatre with its fifteen rows of seats. What would we not give to see with our own eyes the people of that remote Greek city making holiday when those stone benches were filled, row above row, with eager faces of old and young, rich and poor, citizens and country folk, dressed in gay garments as beseemed the glad festival of

[1] Metrodorus, Polyænus, and Hermarchus, who, along with Epicurus, were called in the language of the school the καθηγέμονες, or ' Guides.'

[2] ' No Epicurean,' says Usener, ' could possibly have omitted any member of the so-called τετραφάρμακος γραφή, " The Fourfold Medicine "—that is to say, the doctrines contained in the first four sentences of the κυρίαι δόξαι.'

Dionysus, and with all eyes turned towards the stage where the great dramas of their mother-land were being performed. There they sat absorbed as keenly as we ourselves are in the fortunes of Antigone or Œdipus or Electra, now in suspense, now trusting the gods will surely aid their brave struggle with Fate, while from time to time the music rang out, and graceful figures, youths and maidens, the flower of the city, drew every eye as they moved on the orchestra in glad or solemn dance and song. But where once the concentrated life of the city glowed all is now silent.

On this spot, in the year 1884, two French scholars, while exploring the scattered ruins, were surprised to come upon a great number of inscribed stones, most of them built into a wall.[1] Instead of recording public events, the birth and death of individuals, civil decrees, or laws, these stones, strange to say, all formed part of one gigantic inscription dealing with some philosophical subject. Which school of ancient philosophy did this treatise represent? As the explorers deciphered the following words the secret was soon an open one:

'By means of this writing I speak as if I were personally present, and attempting to prove that the thing which is profitable for our nature is calm (*ἀταραξία*), being the same both for one and all.' (The Greek term quoted, denoting 'tranquillity of soul,' was a well-known watch-word of the Epicurean philosophy.) Other passages run: '[Many there be that] pursue philosophy for the sake of [wealth and honours] with the view of obtaining these from private individuals or from kings. . . . But we have not undertaken the pursuit of philosophy in

[1] MM. Holleaux and Paris. The inscriptions were first printed by M. G. Cousin in the *Bulletin de Correspondance Hellénique* for 1886, and have been admirably edited with a commentary by Usener in the *Rheinisches Museum* for 1892. They have been recollated on the spot by R. Heberdey and E. Kalinka, two Austrian scholars, who found a number of fresh stones, and have reprinted the whole, with many corrections, in the *Bulletin de Correspondance Hellénique* for 1897.

order that we may gain any of the advantages beforenamed, but *that we may be happy, and thus attain the end which Nature craves.* And what is this? It is that which neither wealth nor political honours, nor a life of luxury and costly banquets, nor yet the choicest sensual delights, nor anything else, can give, but philosophy alone produces it.'

'I shall say, both now and always, to all men, both Greeks and barbarians, shouting with a loud voice, that *the best mode of life has happiness for its end,* and that the virtues which are now unseasonably dragged in by these men [the Stoics], (for they shift them from the place of the means to that of the end), are in no way the end, but merely conduce to the end.'[1]

In the last sentence the unknown teacher may seem to blow the trumpet of Epicureanism with too harsh and blatant a sound; but this will offend us the less when we come to realize his good intent.

When these stones were collected and deciphered, it appeared that about the end of the second century A.D. a certain teacher of the Epicurean philosophy, named Diogenes, living in Oinoanda, and being then a very old man, had resolved before his death to have the chief doctrines of Epicurus inscribed on the walls of a large pillared hall near the market, which was a place of public resort. The inscription ran along the wall in three bands, it is thought, each band being divided into columns. The upper one seems to presuppose the existence of the other two, and may have been added after them.[2] In the second Diogenes speaks only of old age and his wish to enlighten his townsfolk, but in the first he speaks as one who knows that death may be very near. It commences:

'I, Diogenes, leave this message to my kindred and

[1] We quote from §§ 15, 27, and 33 of Usener's edition, answering to 58, 60, and 66 of Heberdey and Kalinka's text.

[2] At § 3 (text of 1897) he uses the words, 'As I have shown below.'

relatives and friends. Being so ill that now it is the crisis, whether for me to live or to live no longer (for I am tormented by an ailment of the heart), if I survive I shall gladly receive the gift of longer life ; if I do not survive [still I am content].'[1]

In this portico, amid the stir of the city and the gossip of loungers sheltering from the heat, young and old could stand and read the leading doctrines of Epicurus, inscribed fair and clear on the limestone wall, so that we can still decipher the stones : the necessity for the study of Nature, the doctrine of elements confuted, the infinity of atoms, the doctrine (too central a one to be omitted there) of atomic declination, the nature of the heavenly bodies and their movements, the birth of the world, and other points of Epicurean physics ; on which groundwork there follows, of course, the usual superstructure of ethics, the nature of pleasure, virtue as a means not an end, the doctrine of fate disproved, pain of mind greater than pain of body, what is necessary and what is unnecessary to make life happy, and so on. We imagine the old philosopher looking on with a simple and not unworthy pride as he watched the inscription taking form under the chisel of the mason, to stand there for generations.

The passages chosen were partly from treatises on Epicurean doctrine by Diogenes himself, and partly selections from the writings of Epicurus. In a brief introduction Diogenes explains his motive : he appeals first of all to the youth of the city ; it is the ' faire fresche

[1] Usener supplies the conclusion thus—δ'ὁ[μοίως στέρξω], but δ'ὅ[μως στέργω] may be better. Such a state of health may, as Heberdey and Kalinka suggest, explain the very mixed contents of the first series—a treatise on old age, a characteristic letter of Epicurus to his mother on the subject of apparitions and their powerlessness to hurt us, two other letters of Diogenes, and, finally, various maxims. The first series is in columns of ten lines, and in larger capitals than the second and third, the columns of which are of fourteen lines. Along the foot of the third series runs a single line containing select maxims of the κυρίαι δόξαι. It is in letters of about the same size as those of the first series, and may have been added along with it.

folk' whose ear he is most anxious to catch; he specially invites the ignorant as well to listen message, and also the strangers who may from t time visit Oinoanda—'those who are called str ers, but are not so, for,' he goes on to say, 'all the e th is the one native land of all men, and the world but one home.'

'Being close to the sunset of life, owing to o age, standing as I do on the very verge of dissolution . . . that we may not take upon us now to come to the aid of the mentally disciplined only. Now, if one only, or two, or three, or four, or five, or six, or so many more, O reader, as you wish, belonging to such a class, but no great number in all, were in evil case, I should even have called each to me singly, and to the utmost of my power have given each counsel;[1] but since, as I have said, the multitude are sick, as if in time of pestilence, of one common disease—namely, their false notions regarding the conduct of life—and more are being always added to the number, for, owing to their emulation of one another, they catch the sickness one from another like sheep, I think it right to come to the rescue of those who shall come after us, for they too are ours, even though they are not yet born. Moreover, it is a humane thing to succour those strangers also who come hither. Since, therefore, the assistance of this treatise has gone abroad to the mass of men, I wish to make use of this portico to publish to all the medicine for their salvation. . . . For we have cast out the fears which without reason have taken hold of us, and of cares we have entirely cut off those which are groundless, and those which are for the body we have reduced to quite a little.'

'Seeing the evil case of these men, I lamented over their lot, and shed tears over the destruction of their lives, and I considered it the part of an upright man, so far as in me lay, [to unfold] to the intelligent of them. . . .'

[1] The letters are blurred. I read *κἂν καθ' ἕ[καστον] καλοῦμενος.*

'[illegible]lid we inquire[1] into these things in order that we [illegible] be able to sit at home, and there enjoy the goods of [illegible]phy without [imparting them] to all the un-ed[illegible]ed who are here.'

D[illegible] not these words at once remind us of a tender note of pity and compassion which sounds from long ago?

> O miseras hominum mentes, O pectora cæca!
> Qualibus in tenebris vitæ quantisque periclis
> Degitur hoc ævi quodcumquest! . . .
> Nam veluti pueri trepidant atque omnia cæcis
> In tenebris metuunt, sic nos in luce timemus. . . .'

'O wretched minds of men! O blind hearts! not to see in what darkness of life and in dangers how great is spent this little term of human existence. . . . For as children are in terror and dread every object in the dark, so we in broad daylight often fear what deserves no more to be feared than the things which children dread in the dark, and fancy they must exist.' Do we not recognize at once a kinship of spirit between this unknown, perhaps not very gifted, teacher of Epicureanism in the remote city of Oinoanda and the man of genius—Lucretius in the world-centre, Rome? Both are possessed by the same deep pity for mankind who waste their lives in profitless and mean ambitions, and by the same burning desire to help men in their ignorance, and show them a better way.

Had Diogenes made search in the meaner quarters of Oinoanda, he might probably have found a small company, meeting together one day in the week for worship and fellowship, with whose doctrines he had certain points in common. Gathered together almost stealthily before daylight in some workshop or upper room, he might have found a number of obscure craftsmen and slaves, 'woolworkers, cobblers, fullers, the most illiterate and vulgar of mankind,' as Celsus calls them, along with one or two persons of standing and education, a centurion perhaps, a government official,

[1] §§ 14, 15, and 28 (Usener), answering to §§ 58, 59, and 61 (H. and K.); insert οὐ, for which there is room, at l. 3 of 61.

a lady of rank, all joining in worship and sitting together at a simple feast, the terrible gulf between patrician and mechanic at last forgotten. Both Diogenes and these worshippers were agreed that the world was sick at the heart and needed healing; but 'the followers of one Chrestos' based their doctrine on a far profounder diagnosis of its disease than Diogenes (who so frankly calls himself 'an upright man') or his master Epicurus had attained to. But in one point they were markedly in agreement. Both specially felt for the poor, the ignorant, the slave, the down-trodden, and aimed specially at enlightening these and relieving their lot. To Epicurus such afflicted ones were his brethren, and even more so than the prosperous, because they stood more in need of aid. This compassion for the suffering, this instinct of helpfulness, this recognition of the pressing duty to share our own light with others who have it not, were seeds of genuine life within the teaching of Epicurus. It was this missionary element within Epicureanism which made it less a system of philosophy than a religion, and caused it to preserve its vitality for so many centuries.

We know but little of Epicurus's early history. He was born about 341 B.C., seven years after the death of Plato. His parents were Athenians who emigrated to Samos, and were probably very poor. His father kept a school of the most elementary kind. It is said that his mother followed a vocation of very questionable character: she was a dealer in sorcery, whether on her own account or in connexion with some special temple-worship, we know not. She used to go about 'performing purifications'—that is to say, magical rites and charms, intended to propitiate the Deities, and to avert disease and misfortune—at the cottages of those who wished to employ her, who, it is probable, were chiefly the poor and the ignorant.[1] Possibly she was the priestess of one of the foreign Deities whose worship had travelled from the

[1] *σὺν τῇ μητρὶ περιιόντα αὐτὸν ἐς τὰ οἰκίδια καθαρμοὺς ἀναγιγνώσκειν* (Diog. L., x. 4).

East. Of such worships all sorts of expiations and purifications, intended for the superstitious or the conscience-stricken, formed an essential part. It is said that the boy Epicurus used to assist his mother on such occasions by reading the formulæ. If the story that his mother was a sorceress be true, it is probable that the deceit, the tricks, the grovelling fear of unseen powers which Epicurus had witnessed, as well as the memory of the degrading part which he had as a boy unwittingly played, first kindled in him that passionate hatred of falsehood and superstition which was a ruling principle of his life. The very smell of the incense in a temple might recall to him his mother's incantations. It is the same with all of us who have in youth come under the influence of what may have been merely a narrow and unspiritual creed ; the discovery of its false pretensions creates a violent, perhaps a lifelong, reaction.

After preliminary studies, which seem to have been slight so far as living teachers were concerned, he became a teacher of philosophy, and, after lecturing and gathering disciples in various places, he settled in 307 B.C. at Athens, which he hardly left till his death in 270 B.C. In a suburb of the city he bought a pleasure-ground of some size, the famous 'Garden,' which became the home of his school, and was destined to be for ever associated in the minds of men with his character and teaching.

Alexander died in 323 B.C., so that Epicurus's life fell in the time of the Diadochi, the successors of Alexander. Men who lived in the days of Antigonus, Antipater, and Perdiccas might well conclude that the Gods had wholly deserted the world, and left it to be torn to pieces by despots and usurpers. Well might Eumenes say of the jealous Macedonian generals, 'I live among a crowd of wild beasts.'[1] The career of Agathocles, the son of a potter who rose to be tyrant of Syracuse, is a typical one. Being exiled from Syracuse, he was allowed to return, and was chosen general under a pledge that he would not

[1] Plutarch, 'Eumenes,' c. 16.

interfere with the democracy. He kept his oath by murdering four thousand citizens, and banishing six thousand. Marvellous success attended him during a long course of perjury and bloodshed; he became King of Sicily and part of Italy. A story is told by Athenæus,[1] which shows how such events impressed the minds of men. Danae, the daughter of Leontion, the friend of Epicurus, had been a hetæra,[2] and was the companion and chosen friend of Laodice, the widow and also the murderess of Antiochus II. Laodice had plotted to put to death Sophron, the Governor of Ephesus, who had been the lover of Danae. Being warned by Danae, he made his escape. Laodice was enraged, and caused her to be arrested. She interrogated her, but Danae refused to answer, and Laodice ordered her to be thrown over a precipice. As she was being led to execution, Danae burst out thus: 'Most men despise the Gods, and justly so, seeing that I am requited thus by the Deity for saving the life of the man who was to me as my husband. But Laodice, who murdered her husband, is deemed worthy of so great honours!' Many another beside Danae must in that unhappy age, after witnessing some deed of blood, have cried out, 'There can be no God!' But if there be no Gods to fear, it is all the more prudent to fear those who do unquestionably have power on earth. In 302 B.C., when Epicurus was about forty years old, the conqueror Demetrius demanded of the Athenians that he should be initiated in the Eleusinian Mysteries without the usual year's probation. The Athenians, who had already allowed Demetrius to lodge his mistresses in the inner chambers of the very Parthenon, acceded to this violation of the rules, hitherto strictly observed, as to the most solemn rite of Greek religion; they received Demetrius on his entrance into

[1] xiii. 64. The story is referred to by Wallace, p. 244.

[2] The name of Aspasia reminds us that the most intelligent and accomplished women in Greece belonged to this class. The word does not answer, except in a restricted way, to our 'courtesan.'

Athens with all the honours befitting a Deity—incense, libations, and sacred hymns and dances. One of the hymns contained these lines :[1]

> 'Either the other Gods are far away,
> Or have no ears to hear,
> Or are not, or else heed us not one whit,
> But Thee we see before us—
> No form of wood or stone, but true Deity art Thou.
> To Thee we pray.'

It is impossible to question that the crimes which Epicurus saw on every hand unpunished had their influence, and a strong one, in leading him to believe that the Gods have nothing to do with the affairs of men.

Epicurus appears to have been a man of boundless sympathy and practical benevolence. 'There are plenty of witnesses to his unsurpassable kindness to everybody,' says Diogenes Laërtius,[2] who also speaks of 'his gratitude to his parents, his beneficence to his brothers, his gentleness to his slaves, as is evident both from his will and from the fact that they took part in his studies of philosophy, and his universal kindness to all men.' His three brothers cherished towards him the utmost reverence, and were among his most enthusiastic disciples. 'Even if they had been mistaken,' says Plutarch, 'in the belief which they had held and avowed from their boyhood, that there was no one wiser than Epicurus, still we must admire both the man who inspired such a feeling and those who cherished it.'[3] His followers were warmly devoted to him ; one of them bears witness as follows : 'In respect of his kindness and self-denial, the life of Epicurus, when compared with the lives of other men, might pass for a fairy tale.'[4] Cicero, the unsparing yet generous enemy of Epicureanism, says : 'Epicurus is disproved by himself, and his writings are refuted by

[1] Athenæus, vi. 62, 63.

[2] x. 9, 10.

[3] 'De Fraterno Amore,' c. 16.

[4] ὁ Ἐπικούρου βίος τοῖς τῶν ἄλλων συγκρινόμενος ἕνεκεν ἡμερότητος καὶ αὐταρκείας μῦθος ἂν νομισθείη. This saying (probably by Hermarchus) is given in the Vatican MS.

his own uprightness and character. His life shows that there was inherent in the man rectitude without any thought of personal advantage—rectitude which needed no invitation of pleasure, and was called forth by no mercenary rewards.'[1] Painfully unfolding one of those charred rolls of Herculaneum which are so unwilling to render up their secrets, Gomperz deciphered a letter of Epicurus to a child, the daughter of Metrodorus. It was written apparently after the voyage to Lampsacus, in which Epicurus narrowly escaped shipwreck :

' We have arrived safe and sound at Lampsacus, I and Pythocles and Hermarchus and Ctesippus : and there we have found Themista and the rest of our friends in good health. I trust that you too are well, and your mother, and that you obey your father and Matro in everything as you used to do. For remember, my child,[2] that I and all of us love you dearly because you are obedient to them.'

This little letter, sent from overseas to the child whom he had not forgotten, reveals a strong yet tender character.

Epicurus grew up full of the enthusiasm of humanity, and with the strongest conviction of the dangers of the existing religions. From the very first he declared war against the religion of his day, and to the end of his life he showed himself its thorough-going, fearless, and uncompromising enemy. His system being founded on an entirely unorthodox conception of Nature, which made the world completely independent of Divine control, he gave it the name of ' Physiology,' or ' an inquiry into Nature,'[3] and to his disciples the name of ' Physiologers.'

[1] Cicero, ' De Fin.,' c. 31.

[2] ' Hermes,' vol. v., p. 386. Curiously, and most superfluously, Usener alters the old Homeric word *νάπια*, so natural in speaking to a child, to *ἡ αἰτία* (' Epicurea,' 176). It is the same young girl for whose guardianship Epicurus gave special directions on his deathbed.

[3] See Epicurus's own words in Diog. L., x. 37, 78, 85, 143. Both terms had already been used by Aristotle.

Taking up a position apart from any school of philosophy, he selected from previous teachers their doctrines of natural science and psychology, modifying these to suit himself, and formed a scheme of religion of his own. He saw how large a part Fear played in the religions of his time—fear of unseen powers in this life and of torments in the world to come; how uneasy it made human life, and what a hold it gave to impostors of all kinds. The conviction was forced on him that men could not have free play for the attainment of peace and happiness until they had been delivered from this crushing burden of fear.

In his little handbook of 'Articles of Faith,' the first two aphorisms will show how Epicurus attained this end. They are as follows:

'1. The Blessed and Incorruptible Nature neither has trouble of its own nor causes trouble to others, so that it feels neither anger nor favour, for all such emotions belong to that which is weak.'[1]

'2. Death is nothing to us, for that which is dissolved has no consciousness, and that which has no consciousness is nothing to us.'

By these two doctrines Epicurus believed that he had broken for ever the terrible fetters of superstition. His Deities are, by their very nature, incapable of interfering in the affairs of men; and since, in dying, the soul is disintegrated into unconscious particles, the dread of something after death, which throws its black shadow over our life, is taken away. But Epicurus saw that, in a purely atomic world, man is at the mercy of Fate; the world is a vast machine, and man only a helpless little wheel, revolving somewhere in it; therefore he insisted also that man's will is free. His attempt to explain this by the doctrine of Atomic Declination forms

[1] Lactantius states the doctrine more fully thus: 'If the Gods feel satisfaction or anger, they must needs also be capable of both fear and lust and desire, and the other emotions which belong to human weakness' (Lactantius, 'On the Anger of God,' chap. xv.).

one of the most remarkable chapters in the whole history of philosophy.

3. 'The wise man laughs at Necessity, who is set up by some as mistress of all things. . . . Our own actions are free from any master,[1] and it is in consequence of this that we are liable to blame and praise. . . . It would be better to believe the fables about the Gods than to be a slave to the fate of the natural philosophers; for the former give a shadowy hope that we may deprecate the anger of the Gods by paying them honour, but the other implies Necessity which is inexorable.'

But, having taken away the belief in the life to come and in the mighty Helpers above, what shall Epicurus give us in exchange for those great hopes? Epicurus sought to lead men by the green pastures of life; he made much of its innocent enjoyments, of the pleasures of healthy and temperate living, and calm and untroubled thoughts; but above all he so emphasized one point that it may even (following his doctrine of Pleasure as the Chief Good), be called his fifth cardinal doctrine.

4. 'Of all things which wisdom provides for the happiness of our whole life, by far the greatest is the acquisition of Friendship.'

Epicurus lifted up Friendship into a kind of sacrament, which should ennoble all human fellowship, and brighten the darkest places of life. His system of morals is, indeed, based on the selfish principle; but, within the magic sphere of Friendship, this principle no longer acts—human beings rise somehow to a higher plane.

Probably no philosophical teacher has ever been more monstrously calumniated than Epicurus. For many centuries he was believed to have been himself a sensualist, and to have preached doctrines of the same kind. What are the facts regarding him? This preacher of pleasure lived almost like an ascetic. He was contented, we are told, merely with plain bread and water; he writes to a friend: 'Send me some cheese of Cynthus,

[1] τὸ παρ' ἡμᾶς ἀδέσποτον (Diog. L., x. 133).

that, when I wish to fare sumptuously, I may be able.' 'Such,' Diogenes continues, 'was the character of the man who laid down the rule that pleasure is the chief end of life.'[1] The disciples of Epicurus followed closely in their master's footsteps; they lived, as Diogenes tells us, upon the plainest food, and were contented with half a pint of wine daily, but, as a rule, their drink was water. Their temperance was noted and often ridiculed. 'On certain days the community seems to have observed a fast. In a letter to Polyænus, for instance, Epicurus indulges in a playful boast that while Metrodorus has only reduced his expenses to sixpence [a day], he himself has been able to live comfortably on a less sum. The purpose of such abstinence was not ascetic, but to determine on how little it was possible to be happy.'[2]

> 'Epicurus to the world had taught
> That pleasure was the highest good,
> And was perhaps i' the right if rightly understood.'

But what did Epicurus mean by pleasure? Nothing more than peace of mind and fair health of body. His notion of pleasure is largely negative; he loves to define it as 'freedom from pain.' It amounts, indeed, to little more than 'tranquillity'—freedom from suffering and care.

'Virtue,' he says in one place, 'is the only thing which cannot be separated from pleasure, but other things may be separated from it, such as foods. . . . It is not possible to live pleasantly without living wisely and

[1] Diog. L., x. 27, 139.

[2] From Professor Wallace's excellent little handbook on 'Epicureanism,' a singularly able, fair, and sympathetic account of Epicurus and his work (p. 60). Only, I am inclined to say, Wallace fails to make sufficiently clear the inherent weakness of Epicurus's ethical system. One or two centuries after his death the words 'Epicurean' and 'sensualist' had become, to a noticeable extent, synonymous, and, as years rolled on, they became entirely so. This single fact, when we remember the singularly unworldly character of Epicurus and the nobleness of much of his teaching, is enough to prove that he built his system upon an unsound foundation.

honourably and justly, nor is it possible to live wisely and honourably and justly without living pleasantly.'[1]

His notion of pleasure is the reverse of 'sensual,' in the ordinary meaning of that word.[2] We do, indeed, find sayings attributed to him like the following: 'We ought to honour goodness and virtue and the like if they produce pleasure, but if they do not, we should have nothing to do with them'; and again, 'I spit upon virtue and its empty admirers when it gives no pleasure.'[3] We find even a sentence like this: 'The pleasure of the belly is the root and source of all good: [all] wise and subtle inventions are to be referred to this'—that is to say, men have been prompted to use their intellect ultimately by the motive of securing pleasure. By the 'pleasure of the belly' Epicurus means undeniably the gratification of all the appetites. Why, then, does he so stridently, almost offensively, assert this doctrine? Not from any sensual vein, certainly. It is in order to emphasize his principle that morality has its foundations solely in human needs and utility, and *requires no Divine sanction.* He will make this so plain that none shall question it. But we must remember that to some extent Epicurus's position was a reaction against certain exaggerated and dangerous Stoic doctrines—namely, that virtue and pleasure are essential opposites, and that there is no difference in degree between different faults and vices.

As to the former doctrine, a lady, who has written an enthusiastic defence of Epicurus, says: 'To deny that pain is an evil seems more absurd than to deny its

[1] Diog. L., x. 138, 140. I follow Usener's reading, *οἷον βρωτά.*

[2] Epicurus seems to have been in the habit of minutely analysing the popular notions of pleasure: thus he refers to 'the fine and smooth and enticing motions of the flesh,' with its 'ticklings' and 'prickings,' which the sensualist counts for happiness. His intention is to make such delights contemptible (see 'Epicurea,' Fragm. 409-415). Cicero says: 'De obscænis voluptatibus ab Epicuro sæpissime dicitur' ('De Fin.,' ii. 21).

[3] Athenæus (xii. 546, 547), who is quoting Epicurus's great work, 'On the Chief End.'

existence. . . . The masters who would have us follow Virtue for her own sake, independent of any pleasure or advantage that we may find in the pursuit, are sublime visionaries who build a theory without examining the ground on which they build it, who advance doctrines without examining principles.' Again, as to the Stoic paradox that the man who is guilty of any one sin is as guilty as the greatest sinner, its intention doubtless was to emphasize the truth that no sin is venial, but that every degree of wrong-doing shows a disease of the soul, but probably a great truth was *never* expressed in a more dangerous way. The writer just quoted says :

'Zeno's severe eye looks with scorn, not pity, on the follies and vices of the world. He would annihilate them, change them to their opposite virtues, or he would leave them to their full and natural sweep. Be perfect, or be as you are. "*I allow of no degrees of virtue, so care not for the degrees of vice. . . .*" Thus says the sublime Zeno, who sees only man as he should be. Thus says the mild Epicurus, who sees man as he is, with all his weaknesses, all his errors, all his sins, still owning fellowship with him, still rejoicing in his welfare and sighing over his misfortunes : "I call from my Gardens to the thoughtless, the headstrong, and the idle : 'Where do ye wander, and what do ye seek ? Is it pleasure ? Behold it here. Is it ease ? Enter and repose.' Thus do I court them from the table of drunkenness and the bed of licentiousness. I gently awaken their sleeping faculties, and draw the veil from their understandings. 'My sons, do you seek pleasure ? I seek her also. Let us make the search together. You have tried wine, you have tried love : you have sought amusement in revelling, and forgetfulness in indolence. You tell me you are disappointed, that your passions grew while you gratified them, your weariness increased even while you slept. Let us try again.' . . . I call the Graces and the Muses to my aid—the song, the lyre, and the dance. Temperance presides at the repast, innocence at the festival, disgust is

changed to satisfaction, listlessness to curiosity, brutality to elegance, lust gives place to love, Bacchanalian hilarity to friendship. . . . I follow my course, guided by what I believe to be wisdom, with the good of man at my heart, adapting my advice to his situation, his disposition, and his capacities." '[1]

Epicurus's error seems to have been in putting the right and the pleasant on the same footing, in entirely co-ordinating them. Refine the notion of Pleasure to the very utmost that you can, still the right must take precedence of the pleasant ; though generally in harmony, they are not always so, nor do they stand so related that, if we take Pleasure as our signpost, we shall reach or follow the road of right. Cleanthes the Stoic used to describe Epicurus's doctrine under the following figure. Pleasure sits on a throne, clad in beautiful robes and with royal ornaments, while round her stand the Virtues as her handmaidens, having no other business but to minister to her, and to whisper in her ear a warning to be cautious, and do nothing which might give offence to men, and nothing from which any pain could result. 'We, indeed,' they would say to Pleasure—'we Virtues, are only born to act as thy slaves : we have no other business.'[2] This criticism is severe, yet it does but express the indisputable truth. Probably Lecky is in the right in saying, 'It is impossible to doubt that Epicureanism was logically compatible with a very high degree of virtue. It is, I think, equally impossible to doubt that its practical tendency was to vice.'[3] Cicero says to the debauchee Piso : 'Why have you not better understood the doctrine of your master ?'[4] Unquestionably the

[1] I quote from a little book published in 1822 by Frances Wright, under the title 'A Few Days in Athens,' p. 37. It describes how a young Greek, trained as a Stoic to despise Epicurus, meets him, is won over by his persuasiveness, visits his school, and comes to know the truth of his doctrine.

[2] Cicero, 'De Fin.,' ii. 21.

[3] 'History of European Morals,' vol. i., p. 185.

[4] 'In Pisonem,' 18.

Epicurean doctrine of Pleasure was, for the average man, one easy to be misunderstood, and this in itself is a most serious charge against any philosophical, or, still more, against any religious doctrine.[1]

How unsatisfactory, how utterly incomplete, is Epicurus's purely negative definition of Happiness compared with Plato's definition of the Chief Good as 'living well,' by this meaning, as he explains, 'to live completely and thoroughly,' which Aristotle further expounds as 'the full exercise of man's faculties in various kinds of action in accordance with virtue.'[2]

Let us do Epicurus justice on another important point. In the world of Greece and Rome the Epicureans filled the place which the man of science fills to-day. Epicurus insisted on the study of Nature as a safeguard against superstition: his followers were thus trained to some extent in the methods of science; they knew the difficulty and the importance of accurate observation. The Epicurean took his stand upon facts, and he gained the courage of the man who does so. In him breathed the spirit of the true man of science, open-eyed to all facts which can be verified, cautious, truth-loving. We see an instance of this in Celsus, who wrote a book against Christianity in the second century A.D.[3] Celsus is a true

[1] 'Pleasure assumed as the chief end of life may even lead to a kind of asceticism. Thus Cardan, a famous physician and man of science, contemporary with Montaigne and John Knox, professed a kind of inverted Epicureanism; he maintained, in fact, that since pleasure is produced by contrast with pain, we ought to seek after pain and suffering as much as possible in order by their cessation to obtain a greater total of pleasures. Cardan had, he claimed, always conformed his life to this rule, and he had fared very well by it' (Guyau's 'La Morale d'Épicure,' p. 192). This was an inference from his own doctrines which Epicurus would never have allowed.

[2] 'Republic,' book i.; 'Nicomachean Ethics,' book i., c. 7.

[3] As years went on, probably not a few thinking men heartily accepted the science of Epicurus, while they cast his theology away. Thus Celsus believes, and prays that no man may cease to believe, that unjust men will be punished, and the good rewarded in the world to come (book iii., c. 16).

descendant of Epicurus : he believes that the world goes on strictly according to natural laws, which know no exception ; that there never was such a thing as a miracle ; that an apparent miracle can only be some phenomenon of Nature seen in a false light, and therefore that every professed miracle-worker is an impostor. Many men have held such convictions, yet have refrained from attacking the creeds which came into collision with them ; but in Epicurus was the true fighting spirit of the reformer, in whose mind falsehood and truth cannot lie down peacefully together. Such men do not shrink from attacking false religious doctrines on the pitiful plea of *laissez-faire.*

In the splendid villa at Herculaneum, known as the Villa dei Papiri, from the library of nearly two thousand papyrus rolls, all by Epicurean authors, found in it, there was found a well-preserved bronze bust inscribed with the name of Epicurus.[1] We are struck by the strong features, the firm-set mouth of the born fighter, the heavy brow, like Darwin's, which shows the power to observe and generalize, the furrowed forehead, the somewhat hollow and wasted face, but, above all, by the fearless look of the eyes, which, from wide-opened brows, look the world full in the face. The fearless open gaze of this statue at once calls up the lines in which Lucretius describes Epicurus as the first of mortals who ever dared to lift up his eyes against the awful phantom of superstition as it hung lowering down from heaven upon mankind :

> ' Primum Graius homo mortalis tollere contra
> Est oculos ausus primusque obsistere contra.'

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[1] We refer, not to the smooth and somewhat expressionless portrait, reproduced from an engraving, on the title-page of Usener's work, but to the photograph of the bust in Comparetti and De Petra's book, ' La Villa Ercolanense,' 1883, tav. xii., 7. See also Roux et Barré, tom. vii., plate 8. The portrait of Epicurus as an old man, engraved on the title-page of Gassendi's great work, shows a notably strong and firm-set mouth.

To use a favourite word of Epicurus's, the expression of the face suggests, very markedly, *παρρησία*, 'outspokenness.' It was his absolute uncompromisingness in the battle against superstition which gained for Epicurus the reverence of Lucretius, and which compels our respect to-day.

It says a great deal for Epicurus that he inspired his disciples with much of his own moral courage. Wherever the Epicurean went he was the outspoken enemy of all impostors. This is well seen in Lucian's account of the false prophet Alexander, whom Lucian, himself an Epicurean, tried to expose. Alexander had established himself in the small Greek town of Abonoteichos on the Euxine—a small place far from a great city is ever the *nidus* for an impostor—and had gained for himself not only great riches, but enormous prestige all over the empire, by professing to heal the sick and to reveal the future. Such an impression did the reports of his miracles produce at Rome that a friend of Lucian's, a senator and official named Rutilian, a man of the highest character, became his convert, and finally went out to Pontus to live near him, and became his son-in-law and active supporter. Lucian, who wished to save his friend from the rogue into whose hands he had fallen, made the journey to Abonoteichos to inquire for himself. Lucian was struck by the marvellous dexterity and cunning, and by the remarkable powers of memory possessed by the impostor; he was also surprised by his majestic bearing and by the attractiveness of his manner. Alexander gave out that the God Æsculapius had been born again upon earth in the form of a serpent; he had accordingly provided himself with an enormous tame snake, which he had fitted with a mask very skilfully painted like a human countenance, allowing its tongue to flash in and out through the mouth. This was the God by whom his wonderful answers were given. So cunningly was the imposture wrought, that, as Lucian says, 'the trick would have needed a Democritus or even Epicurus

himself, or Metrodorus, or some other whose mind was firm as adamant regarding such matters, in order to disbelieve it, and to guess what the fact was. At all events it needed a man who, even if he were not able to find out the manner of it, was firmly persuaded beforehand that here was some trickery which he could not see through, since it is impossible for a miracle to occur at all.'

Lucian's efforts failed, and he only succeeded in alienating his friend; indeed, he very nearly lost his own life through a plot of Alexander's to have him drowned on the way home. The false prophet lived to a good old age, and the Emperor Marcus Aurelius even bestowed honours on him. Lucian tells us how bitterly Alexander attacked the Epicureans, who had disbelieved his pretences from the first, and whose opposition must have been formidable: 'Now, the war between Alexander and Epicurus was one without truce or herald (*i.e.*, a war to the knife), and this was most natural, for the one was a magician, a man delighting in jugglery and hating the truth, and whom should he more reasonably wage war upon than Epicurus, a man who had discerned the nature of things, and knew the truth of them. . . . But he had good reason to hate the "relentless Epicurus," so Alexander used to name him, for Epicurus laughed at all such things, and made sport of them.'

To an inquiry regarding the soul of Epicurus, Alexander's oracle had replied that he was in hell, lying in filth and in chains of lead. Alexander went so far as publicly to burn, in the centre of the market-place in the town where he had duped so many, Epicurus's little handbook of maxims, or, as the title may be rendered, his 'Articles of Faith.'[1] We quote Lucian's comment—

[1] Not, as Froude says in his charming essay on Alexander ('Short Studies,' vol. iii.), the whole works of Epicurus. This would have been far too costly a holocaust. The tract referred to, which is but a few pages long, is preserved by Laërtius. This was one of the books which Epicurus expected his followers to learn by heart.

when he speaks of his own debt to Epicurus, even he for once ceases to scoff :

'The wretch was ignorant what blessings that book brings to those who have the good fortune to fall in with it, what peace, what calm, what freedom it works in them, releasing them from fears and phantoms and signs, and also from idle hopes and excessive desires. And it begets within them reason and truth, and it does actually and in reality purge them of foolish opinions, not by torches and infusions of squills'—*i.e.*, by the ceremonies of the mysteries—' and by fooleries of such a kind, but by sound reason and by truth, and by speaking the truth without fear.'

This bonfire in the market-place, kindled by the hatred of an arch-impostor, testifies to the brave and necessary work done by Epicurus. He had become the acknowledged champion of reason and science, not only against superstition, but against impostures of every kind. To all deceivers and quacks his name had become a terror.

I quote a few of Epicurus's sayings, showing at once the narrower and the finer side of his teaching. He is utterly careless as to the form of his writings ; his language is not drawn from books, but is that of ordinary life. His phrases suggest the business man, sometimes almost the illiterate man, so very loose and unprecise often is his use of words. No doubt he meant his works to be easily understood at the docks of Piræus, and in the booths in the market-place of Athens. Wherever he can find a direct and vivid expression, he is not fastidious as to its associations. His words, as they struggle with their meaning, come straight from the heart, and rise at times into a rough but living power.[1]

[1] For example, sentence 2 below: *ποιήματα τε ἐνεργεῖν τὸν σόφον, οὐκ ἂν ποιῆσαι.* Why should Usener emend this fine phrase away ? *ἐνεργεῖν* was a favourite word of Epicurus's—compare 'Epicurea,' 227*b*, and sentence 1 : *τὴν φιλοσοφίαν ἐνεργείαν εἶναι λόγοις καὶ διαλογισμοῖς τὸν εὐδαίμονα βιόν περιποιοῦσαν* (Sextus Math., xi. 169).

PHILOSOPHY.—1. 'Philosophy is a continued exercise of discourse and inquiry to secure a happy life. 2. It is only the wise man who will have a right opinion about literature and poetry: the wise man lives poems instead of writing them. 3. The man who has once become wise can never receive the contrary disposition.'

(So Calvin believed that the elect are beyond the risk of any fatal fall. Similarly Plato holds that, before a man can become a true student of philosophy, he must undergo an utter change of character. But there is nothing in Epicurus's teaching which can answer to the profound spiritual conviction of ignorance which Socrates sought to instil. We may compare sentences 38 and 40.)

4. 'Epicurus says that the wise man can be discerned only by the wise man. It is one of the doctrines of Epicurus that no one has a steadfast and unchangeable conviction of anything except the wise man. 5. The impious man is not he who rejects the Gods of the many, but he who accepts the beliefs of the many regarding the Gods. 5A. Vain is the discourse of that philosopher by which no human suffering is healed: just as there is no profit in medical advice which does not cast out the diseases of the body, so is there no profit of philosophy unless it casts out the diseases of the soul.'

LITERATURE AND ART ARE CONTEMPTIBLE.—6. 'Dear youth, hoist every sail and fly from all manner of culture. I deem thee happy, O Apelles, because thou hast begun the study of philosophy pure from all culture.'

(Plutarch defines 'culture' as all that goes by the name of liberal education. It is very easy to call such an attitude of mind narrow, yet there may be a side on which Epicurus's condemnation of culture deserves our respect. Life is not long enough, he would say, for unlimited reading or writing of poetry, or for mere philosophizing or scientific inquiries for their own sake. We must reserve our thinking for finding out what we ought to do to-day and to-morrow.)

7. 'Epicurus abhorred the whole poetic art as "the

deadly bait of fiction." "The rabble of poets and the silly tales of Homer," as the Epicureans say. The Epicureans say that "Music (Μουσική, which includes literature, poetry, and music) is unprofitable, idle, a lover of wine, and a waster of substance." 8. Polyænus, who is said to have been a great mathematician, after his conversion by Epicurus, believed the whole of geometry to be false. 9. Epicurus says that he himself was his own teacher. 10. Epicurus said that no man was wise unless he had been one of his own disciples. 11. Epicurus used to call the followers of Plato "the flatterers of Dionysius," and Plato himself "the man of gold" (that is to say, the lover of splendour), and Aristotle "a profligate who, after wasting his patrimony, joined the army and sold drugs," and "the copyist of Democritus." Heraclitus he called "the confusion-maker"; Democritus he nicknamed Lerocritus ("the trifler"). 12. Epicurus's books contain no quotation from other sources, but are the voice of Epicurus himself.'[1]

(Plutarch collects a number of terms, 'the vilest epithets of abuse,' he calls them, 'which Epicurus and Metrodorus used to collect and empty on the heads of Aristotle, and Socrates, and Pythagoras, and Protagoras, etc., and every other illustrious teacher.'[2] The reference to Democritus no doubt surprises us. It is often said that Epicurus wholly denied his indebtedness to Democritus. Justice must be done to Epicurus regarding this charge, which, as has been shown, is unfounded.[3] No doubt Epicurus spoke of Democritus in a way which showed characteristic bad taste.)

Practical Wisdom.—13. 'We must both study philosophy and manage our household affairs at the same time, and use the rest of our resources, and never cease to proclaim the maxims of true philosophy. 14. The

[1] From Diog. L., x. 26. Diogenes was himself probably an Epicurean. Epicurus despised the mere 'writers of books.'

[2] 'Non posse suaviter vivi secundum Epicurum,' ii., p. 1086.

[3] See Chapter XIV.

wise man will take care of his property, and provide for the future. 15. The first duty of salvation is to preserve our vigour, and to guard against the defiling of our life in consequence of maddening desires. 16. Among the other evils which attend folly is this: it is always beginning to live. 17. We are born once; twice we cannot be born: for eternity we must be non-existent. Yet thou who art not master of to-morrow puttest off the right time. The life of all of us is ruined by procrastination, and it is on this account that each of us dies before he is ready.'

(This is Epicurus's practical inference from the terrible doctrine of annihilation.)

18. 'The wise man will not believe that Love is sent from heaven. 19. It is an evil thing to live in necessity, but there is no necessity to live in necessity. 20. The mean soul is puffed up by prosperity, but crushed by adversity.[1] 21. Epicurus says that Fortune has no power against the wise man.[2] 22. The wise man will defy Fortune,[3] since no one can gain her for a friend. 23. How fleeting a thing is all the good and evil of the multitude! but wisdom has naught to do with Fortune. 24. The business of most men is a madness, and their rest a lethargy.'

[1] Sentences 1, 2, 3, 5, 7, 9 are from Sextus Math., xi. 169, Diog. L., x. 121, 117, 123, 6-13; 4 is from Aetius and Plutarch ('Epicurea,' Fragm. 225 and 222); 5A from Porphyrius's letter to Marcella, c. 31; 7 from Heraclitus, Plutarch, and Sextus Empiricus ('Epicurea,' 229, 228, 229*b*); 8 from Cicero, 'Lucullus,' 33.

Sentences 11, 12, 14, 18 are from Diog. L., x. 8, 26, 120, 118; 13 and 15 are from Vatican MS., 41 and 80; 16 and 19 from Seneca, Ep., 13 and 12; 17 from Stob. Flor., xvi. 28; 20 is from a Paris Gnomologion ('Epicurea,' Fragm. 488).

[2] Compare the saying of Paracelsus: 'Fortune and misfortune are not like snow and wind; they must be deduced and known from the secrets of Nature.' Epicurus means that the wise man by his knowledge (of the laws of Nature, for example) can secure himself against mishap.

[3] *τύχῃ δὲ ἀντιτάξεσθαι τὸν σόφον.* Compare Porphyry, 'Ad Marc.,' 30, where it is said that the wise man will 'do battle with fortune.'

PLEASURE.—25. 'Epicurus holds Pleasure to be the chief good: yet he defines it as "a sound condition of body."'[1] 26. 'To those who are able to reason, a sound condition of body, and a sure hope of its continuance, affords the highest and the most permanent joy.'

(It is the health of the valetudinarian more than of the athlete which Epicurus has in view. Plutarch justly points out that such a thing as a confident hope of a continuance of bodily well-being is not possible in this world.)

27. 'Epicurus thinks that the animals are the mirrors of Nature. Epicurus says that we may judge excellently concerning goods and evils from those animals which have not yet become perverted. As soon as an animal is born, it rejoices in pleasure, and seeks it as a good; it avoids pain as an evil. (To an Epicurean) You are accustomed to refer to the animals as witnesses concerning the chief good. 27A. 'Tis the belly, O Timocrates, my student of Nature, 'tis the belly on which all the stress is laid in the doctrine which accords with Nature. (A saying of Metrodorus.) 28. Epicurus differs still further with the Cyrenaics. They hold the pains of the body to be worse than those of the mind, and that criminals accordingly are punished in the body; but Epicurus considers the pains of the soul to be the worse, for the flesh feels only the distress of the present, but the soul feels distress both past and present and future. On the same principle, therefore, he holds that the pleasures of the soul are greater than those of the body. 29. In desires you may perceive an infinite difference. Those which concern food and drink are at once natural and necessary. Others which have their origin in Nature a man may refuse to indulge in, and yet be well enough off without them; these are to be called natural, but not necessary. But there is another class of desires which are neither necessary nor natural, but are based on empty opinions caused by our ignorance of what is good;

[1] σαρκὸς εὐσταθὲς κατάστημα.

these last have burst in like a flood from without, and have almost hidden with their multitude all of your natural desires. They are like a crowd of foreigners amid the populace, using violence to the native citizens.' (The wording here may be Epicurus's or not, but the thought and expression are certainly his.)

30. Though he is being tortured on the rack, the wise man is still happy. 31. If the wise man is being burned, if he is being tortured—nay, within the very bull of Phalaris, he will say: 'How delightful this is! how little care I for it!'

(Naturally we suspect this of being mere hyperbole. Yet what contradictory opinions can exist in the same mind! Epicurus's heroic endurance of the awful sufferings of his last illness caused Cicero to say that the death of Epicurus excels that of Leonidas and Epaminondas in fortitude.[1])

Tranquillity.—32. 'Thus for the soul which is in a healthy body, and which places its good in the hopes of the body, it is not possible to live without fear and without swelling waves[2] (compare sentences 36 and 37), for not only is the body exposed to storms and violent gusts from without as the sea is, but it produces from itself yet more and greater disturbances.'

(Thus the man who lives for the pleasures of the senses can never count on tranquillity. At any time a demon-storm of passion may rush down upon him, and violently toss or even wreck his whole life. The word translated 'violent gusts'[3] is one of Epicurus's coinage, and expresses

[1] Sentence 21 is from Cicero, 'Tusc.,' iii. 20; 22, 28, and 30 are from Diog. L., x. 120, 137, 118; 23 is from Porphyry, 'Ad Marc.,' 30; 24 from Vatican MS.; 25 from Gellius, ix. 5; 26 from Plutarch ('Non posse suaviter,' etc., iv., p. 1089); 27 from Cicero, 'De Fin.,' ii. 10, 31, and 33; 27A from Athenæus, vii. 280; 29 from Plutarch's 'Gryllus,' p. 989; 31 is quoted in 'Tusc. Disp.,' ii. 7. Cicero refers in six different passages to this saying.

[2] ἄκυμον.

[3] καταιγισμὸι, from καταιγίζω, which means the rushing down of a squall.

another of his curious anticipations of modern science; it answers to the 'nerve-storm' of the modern physiologist.)

32A. 'The measure of the degree of pleasure is the removal of everything which can give pain.' (The third of the 'Articles of Faith.') 33. Epicurus fixes as the limit common to pleasures the removal of all which causes pain, since Nature heightens pleasure up to the point of removing what is painful, but does not allow it to go further in degree, although it causes it to admit of certain variations which are not necessary. 34. Epicurus says that pleasure has no increase after pain is removed, and that the height of pleasure is to have no pain. 35. Then do we have need of pleasure when we suffer pain from its absence, but when we have no consciousness of suffering this, then we have no need of pleasure.

(How little of happiness does this passive state amount to? Is it not rather a kind of Nirvana?)

36. 'Epicurus places the chief good in the profoundest calm as of some waveless and silent haven. 37. Epicurus says that the soul delights in the lesser pleasures of the body and in calm, but takes no joy in her own greater goods.'

(The word rendered 'calm' denotes 'stillness of the sea.' The favourite image by which Epicurus pictures pleasure is that of a waveless sea. To most men pleasure suggests rather the stout ship driving before the gale to its haven.)

THE NATURAL BASENESS OF MAN.—38. 'It is the wise man alone who will feel gratitude to his friends, but to them equally whether they are present or absent.'

(That is to say, the natural man cannot even feel gratitude! Calvinism never preached the original depravity of man in a grosser form than this.)

39. 'Human nature alone does not give natural affection for nothing, nor can it love without advantage to itself.' 40. Epicurus says that no one loves another except for his own interest. 41. Epicurus makes a jest of our

distinctions between 'what is honourable' and 'what is base,' and says we are taken up with words, and utter mere empty sounds. That noted philosopher who has made a deep impression, not only upon Greece and Italy, but even upon the whole barbarian world, says that he does not understand what 'honourable conduct' means, if it be not a thing accompanied by pleasure, unless perchance it mean what is praised by the popular breath. The praise of men, Epicurus says, is sought after for the sake of pleasure. 42. Epicurus spurns under his feet the achievements of Themistocles and Miltiades, and makes them cheap. . . . The Epicureans name statesmen only to ridicule them, and to destroy their fame, saying that Epaminondas had some merit in him, but it was 'wee,'[1] such is the word they use, while they nickname him 'Iron Bowels,' and ask what possessed him to go marching through the middle of the Peloponnesus, and why he did not sit at home with a woollen cap on his head [instead of a helmet].[2]

43. These words, which are very rarely named by Epicurus, 'wisdom,' 'bravery,' 'justice,' 'temperance.' 44. Ask Epicurus, and he will say that moderate pain is a greater evil than the utmost disgrace. 45. Courage is a thing enslaved to fashions, and to the blame of men, and shaped by foreign[3] opinions and notions : you practise courage, and you encounter hardships and dangers,

[1] *μικκόν.*

[2] Sentences 31, 34, and 37 are from Cicero, 'Tusc. Disp.,' ii. 7, iii. 20, and (by an Epicurean spokesman) v. 6 ; 32 and 33 are from Plutarch, 'Non posse,' etc., v., p. 1090 and 1088 ; 32A from Diog. L., x. 139 ; 35 from Stob., 'Flor.,' xvii. 35 ; 36 from Plutarch, 'Philosophandum Esse,' iii., p. 788 ; 38 is from Diog. L., x. 118 ; 39 from Plutarch, 'De Amore Prolis,' ii., p. 495 ; 40 from Lactantius, 'Inst. Div.,' iii. 17 ; 41 from Cicero, 'Tusc. Disp.,' v. 26 ; 'De Fin.,' ii. 15 (see also his 'Lucullus,' 46, and many other passages to the same effect) ; 42 is from Plutarch, 'Non posse,' etc., xv., p. 1097, C. and Adv. Col., 33, p. 1027.

[3] *ἐπήλυσιν.* Epicurus uses this word to denote all notions or feelings which are artificial (see sentence 29).

not because you have no fear of them, but because you are still more afraid of those other things.

(Herein the weakness of Epicurus's system of morals shows itself. 'Courage,' which is due only to the desire to escape some greater evil than the danger present, will desert a man in the very moment of trial, for 'consideration' is then weak, while the desire of safety is active. It is evident that Epicurus conceived courage as an artificial virtue, something alien to human nature, the instinct of which is self-preservation.)

46. 'Courage is a quality which does not exist by nature, but springs from a consideration of what is in our own interest. 47. Epicurus says that theft is not an evil thing, but the being found out. And because we have no confidence that we shall not be found out, on this account he says, "Do not steal." 48. It is not possible for the man who secretly transgresses any of the agreements which men have made with each other for the purpose of guarding against doing injury or sustaining it, to believe that he will continue to escape detection, even though for the present he should escape a thousand times, for until his death it remains uncertain whether he will not be found out.'

(Can it really be that Epicurus is blind to the sense of isolation which the wrong-doer feels, so that the very beauty of green leaves and blossoms reminds him that he is at variance with the Divine order which all other things obey? In judging such sayings, it is right to remember that Epicurus lacked imagination. How much this implies, and how much it excuses!)

CARE AND AMBITION DESTROY THE SOUL: TEMPERANCE AND TRANQUILLITY SAVE IT.—49. 'Let us neither accuse the flesh as the cause of great evils, nor let us attribute our distresses to outward things. Let us rather seek the causes of these things within our souls, and let us cut off every vain craving and hope for things which are fleeting, and let us become wholly masters of ourselves. For a man is unhappy either from fear, or from unlimited

and vain desires, but if a man bridle these by reason, he may secure for himself a happy life.[1] In so far as thou art in distress, thou art in distress because thou hast forgotten Nature, for thou layest upon thyself fears and desires which have no limits. And it were better for thee to have no fears and to lie upon a bed of straw, than to have a golden couch and lavish table, yet to be troubled in mind. 50. Give thanks to Nature, the blessed, because she hath made necessary things easy to be obtained, while things hard to be obtained are not necessary.[2] 51. By the love of true philosophy every troublous and painful desire is destroyed. 52. If you wish to make Pythocles happy, add not to his riches, but take away from his desires. 53. No one of the foolish is content with what he has, but rather he is distressed on account of what he has not. Just as those who are fever-stricken are always athirst, owing to the severity of their disease, and desire things of the most opposite kinds, so those who are sick in soul are always in need of everything, and through their excessive craving they fall headlong into manifold desires. 54. You must become a slave to philosophy in order to gain true freedom. 55. The most precious fruit of independence and plain living is freedom.'

(The word *αὐταρκεία* means a great deal more than our 'independence'; it is the virtue of needing nothing which we cannot command within ourselves, therefore of having few needs (which implies strict temperance), and so being able to help others rather than requiring

[1] *ἃ τις χαλινῶν δύναται τὸν μακάριον ἑαυτῷ περιποιῆσαι λογισμόν.* Clearly, I believe, this ought to be *δύναται βίον μακάριον . . . λογισμῷ.* Compare the use of *λογισμός* in Diog. L., x. 144.

[2] Sentences 43 and 44 are from 'Tusc. Disp.,' ii. 16, ii. 12; 45: This sentence, which is thoroughly Epicurean, is from Plutarch's 'Gryllus,' a treatise filled with passages quoted or condensed from Epicurus; 46 from Diog. L., x. 120; 47 from Arrian, 'Epict.,' iii. 7; 48 from *κυρίαι δόξαι*, No. 35; 49: This passage is from Porphyrius's letter to his wife, Marcella, c. 29—Usener believes that this treatise is largely made up of sayings borrowed from Epicurus; 50 from Stob., 'Flor.,' xvii. 23.

help from them. This is the cardinal Epicurean virtue. It is plain why it is so. The man who has learned to be 'self-sufficing' needs neither wealth nor favours from other men, nor the world's praise. He has become independent of Fortune. He can say, and say truthfully :

> 'If Fortune frown, I smile,
> The lord of my own hands.'

Closely akin to this quality is the spirit of independence which so strongly marked St. Paul, who claims to be 'free from'—*i.e.*, 'independent of'—all men (1 Cor. ix.). 'I have learned in whatever circumstances I am to be self-sufficing,'[1] 'having entire self-sufficiency[2] at all times in all things' (Phil. iv. 11 ; 2 Cor. ix. 8).)

56. 'Independence and plain living are the most wealthy of all things. 57. Nothing is enough for him to whom enough is too little. 58. Cheerful poverty is an honourable thing. 59. Having bread and water, I revel in the pleasure of the body, and I spit upon the pleasures of costly living, not on their own account, but because of the inconveniences which follow them. 60. We strive after independence, not that in all cases we may use that which is cheap and plain, but that we may have no anxiety as to such matters.'[3]

Do not Live in Publicity !—61. 'Live in retirement ![4] (or, as Horace renders it, 'following the lanes and by-paths of life'). 62. The wise man will be fond of living in the country. 63. It was a precept of Epicurus that man is not by nature adapted for living in civic communities and in civilization. 64. The wise man will take just so much thought for fame as to avoid being despised. 65. I have said this not to many persons, but to thee, for we are a large enough theatre one to the other. 66. Amid so great blessings it has done us no harm that

[1] *αὐτάρκης.* [2] *αὐταρκεία.*

[3] Sentences 51, 53, 56 are from 'Porphyr. ad Mar.,' 31, 27, 28 ; 52, 54, 58 from Seneca, Ep., 21, 7 ; 8, 7 ; and 2, 5 ; 55 and 57 from Vatican MS. 77 and 68 ; 59 and 60 from Stob., 'Flor.,' xvii. 34 and 14.

[4] *λάθε βιώσας.*

our glorious Greece not only does not know us, but has hardly heard of us. (From a letter of Epicurus to Metrodorus on the subject of their long friendship.) 67. The Epicureans shun politics as the ruin and confusion of true happiness. 68. If any one were to inquire which influence is of all others the most hostile to friendship and the most productive of enmity, he would find it to be politics, because of the envy of one's rivals, and the ambition natural in those so engaged, and the discord recurring when opposite notions are proposed.' (From the Epicurean Philodemus.)

(Epicurus used to speak with a sneer of patriots and great statesmen, such as Themistocles, Miltiades, or Epaminondas; yet Plutarch tells us he did not forbid those 'ambitious and glory-loving persons,' whose bent is to politics and public offices, from taking part in these, 'since it is the nature of such men to be disturbed and injured even more by leading a quiet life.')[1]

Righteousness.—69. 'Let us completely drive out evil habits as if they were wicked men who have for long wrought us great harm. 70. No one beholding evil chooses it, but, being enticed by it as by a bait, and believing it to contain more good than evil, he is ensnared.[2] 71. The knowledge of sin is the beginning of salvation. 72. The most precious fruit of righteousness is calm. 73. The life of the just man is perfectly tranquil, but the life of the unjust is laden with the utmost trouble. 74. Where, then, is the pleasure of wrong-doing, if a man can nowhere find freedom from anxiety and pain, nor yet independence, nor tranquillity, nor quiet? 75. Reverence for the wise man is a great

[1] Plutarch, 'Epicurea,' 553-560.

[2] Sentence 61 is from Plutarch (p. 1128), who devotes a special tract to discussing the maxim (compare Horace, Ep., i. 18, 'Secretum iter et fallentis semita vitæ'); 62 and 64 from Diog. L., x. 120; 63 from Themistius, p. 390; 65 and 66 from Seneca, Ep., 7 and 79; 67 from Plut., 'Pyrrhus,' 20; 68 is deciphered from one of the Herculanean rolls ('Epicurea,' 552); 69 and 70 are from Vatican MS., 46 and 16.

good for the reverer. 76. We must select some good man, and keep him ever before our eyes, that so we may live as if he were beholding us, and may do everything as if in his sight. 77. Do everything as if Epicurus saw you.' (A saying of Metrodorus.)[1]

DUTY TO OUR NEIGHBOUR.—78. 'The wise man, when brought into distress in company with others, shows himself a comrade ready to give rather than to receive; so great a treasure of self-reliance hath he found! (Usener reminds us how, during the terrible siege of Athens in 295 B.C., when so many died of famine, Epicurus supported a number of his friends by sharing with them a scanty store of beans, counted out daily to each [Plut., 'Dem.,' c. 34]. 79. It is more blessed to give than to receive. 80. Epicurus says that it is not only a nobler but also a more blessed thing to do good than to receive it, for there is nothing so productive of joy as doing kindness. 81. The wise man will not punish his slaves, but will take pity on them, and will show consideration to any that are zealous. 82. Turn not away from the prayer of thine enemy when he is in distress, yet take heed to thyself, for he is no better than a dog' (that is, he may bite you in the very act of feeding him).

FRIENDSHIP.—83. 'Of all things which wisdom provides for the happiness of a lifetime, by far the greatest is the getting of friendship. 84. The man who is noble of heart is most of all taken up with wisdom and friendship, of which things one is a mortal and the other an immortal good. 85. Neither those who are over-ready nor those who are too slow to enter into friendship are to be approved: one must even risk somewhat for the sake of friendship.' 86. 'We ought to look round for people to eat and drink with, before we look for

[1] Regarding F. W. Robertson, we are told that a merchant in Brighton had the preacher's portrait hung on the wall of the little parlour behind his shop. Whenever he was tempted to do any trick of trade, or behave unhandsomely, he would hurry into his back-parlour and look at the portrait. 'And then, sir, I felt that I could not do it, that it was *impossible* for me to do it.'

something to eat and drink; feeding without a friend is the life of a lion or a wolf.[1] 87. We do not so much need to have our needs supplied by our friends as to have the faith that our needs will be supplied by them.' 88. Pythagoras held that the property of friends is common, but Epicurus did not approve of the community of goods; for such an arrangement befits those who distrust each other, but there is no distrust in friendship.'

(Epicurus's practical wisdom and delicacy of feeling are both seen here. It is part of the essence of friendship that its mutual duties should be free from all constraint.)

89. 'Sweet is the memory of the friend who is dead. 90. The wise man suffers no more pain when on the rack himself than when his friend is upon it; but if any man feels suspicion of his friend, his whole life will by his distrust be confounded and turned upside-down. 91. An occasion may come when the wise man will die for his friend. 92. Friendship makes her progress of the world like a chorus (that is, like some beautiful spectacle which attracts every eye), making proclamation to all of us to awake and enter into happiness.'[2]

In these maxims there is much to admire. Epicurus's influence over his disciples was so great that we are inclined to attribute it to the magnetism of his own genial personality; but how is it that, centuries after his death, Lucretius himself and the Epicureans in Cicero's dialogues speak of Epicurus with the warmth that we feel to a living benefactor? To them he is the one guide of life. Torquatus says: 'I hold that he alone discerned truth'; 'Epicurus, the discoverer of truth.'[3]

[1] ''Tis the company, and not the charge, that makes the feast' (Izaak Walton).

[2] Sentences 71, 76, 77, 86 are from Seneca, Ep., 28, 11, 25, 19; 72 from Clem. Alex. 'Strom.,' p. 266; 79, 80, 89 from Plutarch, pp. 1097, 778, 1105; 81, 88, 91 from Diog. L., x. 118, 11, 121; 82 from the Gnomology of Maximus Abbas, 66; 83 from the *κυρίαι δόξαι*, 27; 73, 75, 78, 84, 85, 87, 90, 92 are from the Vatican MS., 12, 32, —, 78, 28, —, 56, 52.

[3] Torquatus in the 'De Finibus,' i., cc. 5 and 10.

Lucretius declares 'he was a God, a God, who first found out that rule of life which is now called "Wisdom."'[1] Over and over again Lucretius tells us that Epicurus was 'the first' who attained to truth.[2] When he says that Epicurus 'surpassed the race of men in genius, and quenched the light of all others as the ethereal sun, when he has risen, quenches the stars,'[3] we may think it hyperbole, but at the beginning of almost every book of his poem Lucretius repeats the same acknowledgment of his debt to his master. It is now his spiritual bravery,[4] now his marvellous insight into Nature,[5] now his power to cleanse the heart, and save mankind from the miseries of ambition, from lust, care, and fear.[6] The Epicureans of Lucretius's day even went so far as to claim for their own doctrines in particular the name of 'Wisdom' (*Sapientia*). Yet this seeming arrogance is not entirely without justification. Epicurus wished his disciples to bend their whole thoughts to the attainment of *practical wisdom*, sound sense, and decision in the conduct of life. He discouraged philosophical speculation, general culture, even the study of Nature for its own sake merely. To him the great subject-matter of human study was conduct as relating to happiness. Was not Epicurus to a great extent right? It is what we ought to do to-day and to-morrow which we require, more than anything else, to know. How often do we see a literary man or artist lead a miserable life for lack, not so much of ability to guide his worldly affairs, as of the necessary forethought and attention. Epicurus would have used such a life as a moral to drive home his teaching on the folly of mere culture, nor can we blame him. At the same time we must admit that his violent opposition to the study of literature and philosophy is almost insanely shortsighted. It is as if a gardener were

[1] v. 8-10. [2] i. 66, 67; iii. 1, 2, and 9.
[3] iii. 1043, 1044.
[4] See the introductions to books i. and iii. [5] *Ibid.*
[6] See the introductions to books ii., v., and vi.

to strip off all the leaves of a fruit-tree because he supposed them to be superfluous, and merely to divert nourishment from the fruit.

It may seem to us at times that the calm on which Epicurus insists so strongly is a somewhat low ideal of life; but let us remember that in no case can this calm be attained without the restraining of all immoderate desires. And how much this means! To live as a consistent Epicurean in the spirit of Epicurus demanded not only self-renunciation, but a constant habit of self-command. Epicurus not only teaches us to practise constant foresight and decision, but exhorts us to hold our lives well in hand. Whatever interferes with self-command must at once be sacrificed. 'Be wholly masters of yourselves,' he keeps telling us. 'Never drift, for you know not what unseen watchers in the form of Passion or Inclination may be waiting to rush to the helm.' This is why Epicurus so dreads love, because there is danger not only lest it dazzle the eye of calm reason, so that things appear what they are not, and meaner motives take the place of stronger ones, but, under its glamour, the will may fall asleep. But while Epicurus rightly despises the man who is passion's slave, his insight in such matters was not of the deepest.

> 'I could not love thee, dear, so much,
> Loved I not honour more.'

Here was a standpoint of safety which he seems never to have thought of.[1]

Probably the deepest and truest of all Epicurus's teaching lay in his warnings against ambition, specially because of the care and anxiety which go hand in hand

[1] May it not be said that Epicurus wished to substitute the idea of Friendship for that of Love? Jowett's words on the subject might have been spoken by Epicurus himself: 'The religious ideal, the philosophical ideal, is far better than the ideal of female friendship. If any pleasure is to be gained from this it must be strictly regulated, never allowed to pass into love or excitement, of a noble, manly sort, with something of protecting care in it' ('Life,' vol. ii., p. 108).

with it. For the ambitious man, living in a perpetual fever while he struggles for wealth or fame, Epicurus felt a singular pity, such pity as others feel for the drunkard and the sensualist; all three, he would have said, are losing the good of their lives. His preaching on this subject must have come home to the heart of many a one in busy Athens and Rome. Embodied in Lucretius's noblest poetry, it comes home to men to-day, and will do so while the world lasts. Lucretius's verses on this subject have the tone of deepest personal experience and conviction; he pleads with men like a prophet inspired to warn them.

Other philosophers addressed themselves specially to the well-to-do and the cultivated, but Epicurus takes as much thought for the poor, the untaught, the suffering, as for the fortunate. Indeed, he seems to have the former most in view. He made fellow-students of his slaves, and considered them among his friends. 'The wise man,' he used to say, 'will not punish his slaves, but will take pity on them, and will show consideration to such as are zealous.'[1] It is not too much to say that he regarded all men and women as his fellows whom he would gladly help. We do not wonder to hear that no head of any school of philosophy in Athens was so loved as Epicurus. 'What a number of friends he used to gather in one house, and that a small one, and in what a unanimity of mutual affection did he hold all these troops of friends. And the Epicureans do the like to this day.'[2] So says an Epicurean in one of Cicero's dialogues, nor does any other speaker contradict him. Indeed, elsewhere Cicero speaks of 'so many of my friends who are Epicureans, men so good and so devoted to each other'; and again: 'There have been, and there are to this day, many Epicureans faithful in friendship.'[3] His system of morals compelled him to reduce even friendship, in its origin, to the selfish principle, as being founded on

[1] Diog. L., x. 118.
[2] 'De Fin.,' i. 20.
[3] 'Academica,' ii. 115, and 'De Fin.,' ii. 25.

mutual needs; but in spite of this he conceives the relations between friends as utterly disinterested. 'It is impossible,' he says, 'to preserve friendship long unless we love our friends as well as we love ourselves.' 'In friendship it is better to do good than to receive it.' 'An occasion may come when the wise man will die for his friend.'[1] The common feasts established by Epicurus on the twentieth of each month fostered a common life and spirit among those who entertained a common affection for their master; and these simple feasts, kept up regularly after his death, preserved the same warm feeling of brotherhood among the Epicureans in each city. Thus Epicurus had the power to create and leave behind him, as Cicero testifies, a high and living ideal of human fellowship. Epicurus came to teach the world (and it is perhaps the highest lesson which he taught it) that friendship is not a luxury but a necessity of our life; that it makes hard and struggling lives bright, so that even dangers and privations endured together become sport, and the spirit of comradeship makes even death lose its fears. 'For the safety of his friend it is permitted to the brave man to tremble.' How lightsome is the picture drawn by Lucretius of the company enjoying themselves in the country on a day of spring: 'Reclining in groups on the soft grass, beside a stream of water under the boughs of a high tree, they refresh their bodies with jollity on simple fare, above all when the weather smiles and the seasons of the year besprinkle the green grass with flowers'; and he contrasts with this the costly feast in the splendid banqueting-hall, brilliant with lights and echoing with music. The spirit of the picture is thoroughly true to Epicurus: it is harmonious fellowship that makes the gladness of life, not splendour and sumptuous fare.

No one can fail to see how thoroughly practical Epicurus

[1] The first sentence is spoken by Torquatus, the Epicurean, in 'De Fin.,' i. 20; the latter two are from Epicurus himself (Diog. L., x. 121).

was. This is seen, for instance, in his plan of preparing handbooks, containing abridgments of his doctrines for the use of such as had not time or faculty or patience to master his longer and more elaborate works. Four of these abridgments we fortunately still have.[1] Three of them are in the form of letters, addressed respectively to Herodotus, Pythocles, and Menœceus. The first contains a brief sketch of his whole system, excluding ethics; the second, his meteorology, or the science of the heavenly bodies; the third, his ethics. The last is a short collection of maxims, summarizing these subjects. The practical value of the plan can at once be seen: those familiar with Epicurean doctrines were thus enabled to see at a glance how the whole system bore on any question of dispute; while the conciseness of style of these tracts and their everyday language made them easily intelligible to the unlearned. Such consideration for the uneducated was an unheard-of thing before Epicurus's day, and is beyond praise. Philosophers before him did not dream of addressing 'all.'[2] Epicurus repeatedly recommends the committing to memory of these abridgments.[3] The Epicurean, thus equipped, had all his weapons ready, and was prepared at all points to defend his faith. Again, the monthly social meetings instituted by Epicurus explain part of the success and vitality of his system: he did not, like Plato or Aristotle, merely found a school for a few disciples whose bond was in their common studies; he founded a brotherhood, with fixed days of meeting, and laid down as specially binding on his disciples the duties of friendship and mutual help. Thus the organization which Epicurus founded was of a nature to live after him. As M. Martha says,[4] it was not so much a school of philosophy as a 'secular church.' In this way Epicurus did actually succeed in handing down directly from his own personal

[1] In the tenth book of Diogenes Laërtius.
[2] πᾶσι τοῖς ἀγραμμάτοις (Diogenes of Oinoanda).
[3] Diog. L., x. 12, 35, 83, 85. [4] 'Le Poème de Lucrèce,' p. 10.

circle, from one Epicurean society to another for many a generation, a tradition of loyalty and generosity in friendship which stamped true Epicureans everywhere, and which even their enemies had to admire.

Among other philosophers Epicurus appears as the 'practical man,' somewhat as the revivalist may be called the 'practical man' among the preachers of religion. The 'practical man' is invoked in lawsuits as a complete master of ways and means, outlay and workmanship; yet such a man is not allowed to fill the place of judge, and to settle the Why as well as the How. Those whose aim is, above all else, to be practical are in danger of taking short-cut methods, which, after all, may hinder them, and, moreover, are likely to repel others. Thus there are contradictions in Epicurus which are always cropping up afresh, and which, amid all our admiration of the man, leave in our minds an uneasy feeling of inconsistency. He is a thorough-going Materialist, yet he believes in Free-will; he believes in the Gods, and devoutly worships them, yet his Gods have nothing whatever to do with the world; he bases all human action on the selfish principle, yet he has the very highest ideal of friendship; in politics he advocates the utterly contemptible, cowardly policy of *laissez-faire*, yet towards all false religion he shows himself an unflinching foe, who will never sheathe his sword; he shows the profoundest interest in science, yet he professes that science is only worth study as a weapon against the popular theology; he lays down Pleasure as the highest ground and only motive of conduct, yet we find such maxims as 'Even if the wise man is on the rack, he will still be happy.'[1] At one time his speech is a little lower than

[1] Epicurus would seem to have realized the marvellous power of the trained will, not merely to restrain the thoughts, but even to dominate and repress sensations of bodily pain. Only in this way can such a saying be intelligible. Epicurus's chief good, the calm and peaceful habit of mind, was to be attained only by daily and hourly self-restraint. Indeed, his whole rule of life presupposes this.

that of the angels, yet presently he is abusing other philosophers with the coarseness of a thorough charlatan. These contradictions leave on the mind a painful feeling, which cannot be got rid of, of something like insincerity. Probably quite unfairly. For instance, we might say that the maxim last quoted is spoken merely for show, intended to counteract the impression that his doctrines tend to produce effeminacy. This would be most unjust. Epicurus himself, at the end of his life, showed that this claim to fortitude of mind was no mere boast. In the letter which he wrote on his death-bed, he says: 'My sufferings are so severe that nothing can be added to their violence; yet all these afflictions are combated and counteracted by the cheerfulness of mind which comes from the memory of our past discussions.'[1] (Did the inward joy, overmastering bodily agony, come in truth from such a source? Rather, surely, did it spring from the pure and self-denying life, and from the memory of many an act of benevolence and service.) The words quoted show the iron strength of character which is indicated by the extraordinary, almost ascetic, temperance of his whole life. How then explain these inconsistencies? Perhaps in this way. Epicurus's estimate of human nature seems to have been a very imperfect and, in some ways, a superficial one. He had, it would appear, so little of any sensual or selfish element in his own character, that he did not sufficiently take into account the selfishness of ordinary men. Thus we sometimes, though rarely, see one member of a family very unselfish and generous, who, by treating the others as if they were as fine-natured as himself, and refusing to take into account their weakness and self-indulgent spirit, puts in their way temptations which they cannot resist, yet which ordinary men would never have put within their reach: such a one may even corrupt and ruin a household. In the same way the doctrine of Pleasure as the great ruling motive of conduct is dangerous

[1] Diog. L., x. 23.

to the ordinary man. Epicurus did not sufficiently allow for the fact that pleasure for himself was one thing, and for the average man an entirely different thing. The consequence is what we might expect. So long as Epicurus survived, going in and out among his disciples, his own noble life and practice ensured that his doctrines should not be gravely misconstrued ; so soon as he was dead, and his doctrines stood alone, they were only too certain to be perverted and made to justify self-indulgence and effeminacy.

Epicurus's short road to Happiness and Virtue by way of Pleasure stands on the same footing as the infallible prescription of the old lawgivers for repressing crime ;— To make men honest and law-abiding, it is merely necessary to hang every offender, be his offence small or great. Both Epicurus and the Draconian lawgivers make shipwreck on the inherent constitution of human nature. The Stoic creed, so harsh and stern as to seem forbidding, actually bade men despise Pleasure ; and yet, in spite of this, while Epicureanism could command but a weak assent, Stoicism by its bold appeal to the noblest part of man's being, the sense of Duty within, struck the note to which the human heart answers, and cannot but answer, and it compelled the allegiance of the noblest spirits for many an age. Stoicism made little or no allowance for human weakness, and it demanded much from human nature, but it demanded it in the name of Conscience ; and it is part of the very nature of man that, if he can but recognize that he has orders from his unseen Commander on high, he has the heart to do and endure almost anything. Not even for the price of Pleasure can he endure to be a masterless creature. Epicurus, too, makes large demands on men, and he thinks to dignify the self-denial and almost asceticism of his rule of life by calling it Pleasure ;[1] yet he thinks too meanly of human nature when he assumes

[1] ' Those words which are very rarely named by Epicurus—namely, wisdom, bravery, justice, temperance ' (' De Fin.,' ii. 16).

that Ease is the one motive which men cannot resist. In one of the most memorable utterances of our nineteenth century Thomas Carlyle has spoken the truth as to this in words which deserve to be called

'Aurea, perpetua semper dignissima vita':

'It is a calumny on men to say that they are roused to heroic action by ease, hope of pleasure, recompense, sugar-plums of any kind in this world or the next! In the meanest mortal there lies something nobler. The poor swearing soldier, hired to be shot, has his "honour of a soldier," different from drill regulations and the shilling a day. It is not to taste sweet things, but to do noble and true things, and vindicate himself under God's heaven as a God-made man, that the poorest son of Adam dimly longs. Show him the way of doing that, the dullest day-drudge kindles into a hero. They wrong man greatly who say he is to be seduced by ease. Difficulty, abnegation, martyrdom, death, are the *allurements* that act on the heart of man. Kindle the inner genial life of him, you have a flame that burns up all lower considerations.'[1]

As we have said, Epicurus demanded the strictest temperance; he and many of his followers practised an almost ascetic life. But how is he to enable ordinary men to do this? Epicurus's words often sound as if he did not realize the difficulty of the problem. Thus Lucretius tells us that it is in our power to eradicate almost entirely our own evil temperaments. 'So very small,' he says, 'are the traces left of our original natures, which reason is unable to expel from us, that nothing hinders us from living a life worthy of the Gods.'[2] But where, O Lucretius, is the motive power which shall constrain us in the moment of temptation, when the eyes are blinded with the mists of passion, and we feel our resolves shaking, to prefer self-denial to self-indulgence? Will self-interest (Epicurus would call it 'the

[1] 'On Heroes,' Lecture II.

[2] iii. 307-322.

fear of losing our calm of soul in the future') make the lazy man or the thief or the coward or the drunkard conquer his besetting sin? Certainly not. Neither the fear of hell, nor the fear of prison, nor the fear of broken health, is sufficient. The Epicurean creed contains nothing strong enough to claim, as a right, our allegiance. Yet Epicurus provides us with some help. He bids us keep ever before our eyes the thought of some good man whom we know, and act always as if he saw us; intending by this that the thought of a stainless character, perhaps, too, the memory of such a man's kindness to ourselves, may help to constrain us to the right, if only that conscience may not show us the well-loved face pained by our defeat. In the reverence of his followers for Epicurus himself, in the contagion of unselfishness among his disciples, there lay a certain constraining power.

Again, how is it that Epicurus and Lucretius dwell so much on the evils of Care and Fear? Not only do these overshadow the life of man, but even the world itself, 'throughout its deep forests and vast mountain ranges, is filled full of quaking and terror,'[1] because of the beasts of prey which the other creatures dread. But is this true? Suffering enough there is around us, as all can see whose eyes are not blinded by a selfish and cowardly Optimism, but we turn and ask Epicurus, 'Is there, then, so much of Care and Fear in the world?' Watch the sparrows in the city garden, and see their sovereign contempt for their ever-vigilant enemy, the cat. How near do they allow her to come, and, when she springs, how calmly do they fly to a bough a few feet off! Do they not laugh in her face, as it were? Again, in the woodland, the pigeon flies from the hawk which doubles ever on her track, but, once in shelter in the cranny, she has no lasting distress nor anxiety. And even among men, ambition, we admit, brings cares with it, but this is a burden which men lay on their own backs. Do not

[1] 'Trepido terrore repleta est
Per nemora ac montes magnos silvasque profundas.'

thousands live next door to starvation, yet forget how precarious is to-morrow's bread? Again, do not men build their houses on the very fringe of the volcano? Do not the sailor and the miner live in constant peril, yet they can lie down to rest at night without concern for the dangers of to-morrow. The mother will at any time face death for her child. No, we cannot admit that the world is filled so full of care and terror. Whatever may be the case in special epochs of tyranny and superstition—and in such epochs both Epicurus and Lucretius lived—ordinary men in ordinary and, indeed, in almost any times are not thus enslaved to anxiety. 'Nature the blessed' has not given her children hearts of fear.

There would seem to have been a certain lack of robustness in Epicurus's bodily and mental habit. Those who are vigorous in body and manly in character do not construct a philosophy of life with the special motive of escaping the strain of anxiety, danger, or toil. Epicurus, himself a man of weak physical frame, is said to have disliked or disapproved of 'gymnastics'—what we should call 'sports'; a very significant fact. He cared nothing for the

'Swift, strong splendour of Achilles.'

He seems, indeed, to have lacked animal spirits and healthy vitality. He did not, like the Stoics, take hold of the fact that 'pluck,' cheerful courage, is the highest human quality, and that its exercise is the highest human happiness, though it would be absurd to say that he did not recognize such a virtue as valuable—indeed, he himself gave signal instance of it. He seems not to have known that hard lives are often happy ones, and to a pure and healthy mind are more satisfying than ease and quiet, and that to many men danger and hardship combined are enticing.

Epicurus keeps always telling us to limit or do away with our desires. 'If you wish to make Pythocles happy,' he says, 'add not to his riches, but take away from his

desires.' A poor solution, seeing that so many of these aspirations and desires grow out of what is noblest in us! Even if we live 'according to Nature,' frugally and without reckless ambition, in spite of this, the craving for human love, for knowledge, for wider experience of life and adventure, the longing to help our fellow-men, may, or probably will, still leave us uneasy and dissatisfied. Epicurus grants this. The human heart is at fault, he says (and here, in one sense, the greatest religious teachers agree with him, from the Psalmist to Plato, and from St. Paul to John Wesley); the heart of man, with its many unsatisfied longings, is like a foul or leaking vessel, which wastes or pollutes whatever is put into it.[1] But still Epicurus tells us: 'You need not despair; simply cut away these vain desires, and you will be happy.' But this is not true: such longings are simply part of us, and must be regulated, not destroyed. They need to be lifted up into a higher plane where they can find free play. The soul has its own hunger even as the body has, and no philosophical make-believes will take the place of bread.

Very characteristic of Epicurus is his violent condemnation of education and of all kinds of culture, his depreciation of the study of literature and of all philosophy except his own. Like some of our own contemporaries who in youth were extremely heterodox, and have ended by becoming bigots, Epicurus, who began life by doubting everything accepted by other people, ended by establishing a cast-iron type of orthodoxy with fixed dogmas. His primers of science and religion were, indeed, a Bible to his followers, not in the highest sense of the word, but in the sense of an Infallible Book which admits of no correction or growth. Attempts at improvement were met by an Αὐτὸς ἔφη—'The Master has said it.' Numenius says that the school of Epicurus resembles a republic free from party strife, having only one mind, one opinion,' and that in it 'an innovation would have

[1] Lucr., vi. 17-28.

been regarded as an impiety.'[1] Lucretius speaks of himself as pouring forth 'oracles more holy and far more certain than those of the Pythian prophetess.'[2] Cicero, indeed, laughs at the confidence of the Epicureans, 'who are afraid of nothing so much as of seeming to be in doubt, and speak as if they had just come from the assembly of the Gods.'[3] This infallible tone undoubtedly offends us in Epicurus, but less so in Lucretius, whose absolute confidence in the wisdom of his master has something pathetic in it. The Epicureans made many converts from other sects, yet no Epicurean was known to become a pervert.[4] When we read Epicurus's abuse of the great thinkers and poets of the past, and his boast, pitiful in any man's mouth, of being a 'self-taught man,' we cannot acquit him of presumption, of over-weening self-confidence. No other sin brings heavier punishment in the form of blinded eyes.

In a famous passage in the fifth book Lucretius shows up the defects of the world:

'In the first place, of all the space which the vast reach of heaven covers, greedy mountains and forests of wild beasts have taken possession of one part; rocks and enormous swamps and seas, which hold wide apart the shores of different lands, take up another. Next, of nearly two-thirds, burning heat and the constant fall of frost rob mankind.'[5]

[1] Eusebius, 'Præp. Evang.,' xiv. 5.

[2] Lucr., v. 112. The sayings in Epicurus's little catechism of fundamental doctrines (the *κυρίαι δόξαι*) used to be called by his followers 'The Oracles of Wisdom' (Cicero, 'De Fin.,' ii. 7).

[3] 'De Natura Deorum,' i. 8.

[4] Timocrates, brother of Metrodorus, is an exception.

[5] v. 195 *ff.* A noble answer was made to Epicurus by Epictetus, who probably had this very passage of Lucretius in view. His words freshen the Epicurean levels like a gust of mountain air: 'What, think you, would Hercules have been had there been no such lion and hydra and stag and boar, as well as certain unjust and brute-like men whom he used to drive out and purge the world of? If there had been nothing of the kind, what would he have been doing? Plainly he would just have wrapped himself up and slept. In the first place, then, he would

And when so small a part is left fit for man to live on, he goes on to say: 'Why is this overrun with thorns? why has man to groan as he toils over hoe and plough before it can be tilled? why is his labour so often made void by storms, by extreme heat or cold? why is he in danger from wild beasts, from diseases? Why is the wailing baby so helpless compared with the young of other animals?'—Lucretius has forgotten to add that Nature has given the infant a big brain, by aid of which man can overcome all these disadvantages—But what a poor little world Epicurus would make of it if he had his way! No mountains for Alpine climbers; no Arctic ice and tropic wastes for the explorer; no bears and tigers for the sportsman; no Atlantics with sudden storms and mountainous waves, 'where Deaths, like regiments, ride.' Our world appears a sad mistake to Epicurus; but how poor a thing would life be without danger and adventure, and waste places of the earth to rouse the imagination and give it room! The Epicurean, well-meaning but short of sight, would gladly send Nature to school, and compel her to reform her wild and lavish ways. No doubt an untilled and uncropped corner, where the birds can build and sing in bush and tree, and the primroses grow in and out among the rocks, is offensive to the farmer's eye; but man does not live by bread alone. Let us be thankful that neither abundance of corn and wine, nor yet a life of safety, will satisfy the human heart. This old earth is not less dear to us because everywhere on it danger lurks.

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not have been Hercules.' But we do not need to seek for a lion or a hydra, useful as they were to Hercules. 'Look at the powers you have,' he continues, 'and then pray Zeus, "Bring now, O Zeus, whatever crisis Thou pleasest, for I have in me powers given by Thee, and opportunities for ennobling myself through the things which happen." You do not this. Nay, you sit still, trembling for fear lest some things should happen, and over what does happen you weep and lament and groan. And then—for such poorness of spirit can result in nothing else but impiety—you blame the Gods' (book i., c. 6).

Epicurus leaves out of account two essential facts of human nature: the love of adventure, and that out of which our love of adventure springs—namely, our imaginative faculty. Let us give him all praise because he taught how high a pleasure is the helping of one's neighbour, and let us remember that when he forbids the study of poetry and literature it is largely because of his severely practical aim. The Imagination he sees to be a dangerous force if misused; but does he not see that by thus seeking to kill it instead of restricting and guiding it, he is not merely reducing the number of the higher pleasures, but is tearing out a very eye of the soul? To know definitely that the world is made of atoms, that the soul also is atomic and dissolved at death, and that the Gods can do us no harm, does not make up for all the regions which he annihilates. In the audacity of his conviction he forbids us the friendship of Achilles and Ajax and Neoptolemus, of Alcestis and Electra and Antigone. True, these heroes and heroines were old-fashioned enough to believe in the Gods, yet what splendid human ideals do they represent! What a glory do they reflect over the old world which sometimes looks so grey! Do not the poets throw wide open a door for the poor or the unhappy to leave his troubles behind, and wander through wide realms with brave and beautiful companions, and return to his narrow life inspirited and able to make it fuller? Epicurus cuts the Imagination out of life, and our instincts rise up in rebellion against this. 'Yes, friends,' says Carlyle, 'not our Logical, Mensurative faculty, but our Imaginative one, is King over us.' This radical truth Epicurus to a great extent ignores. A dangerous error! Our forefathers, also, though from different motives, declared war against the Imagination; they forbade the reading or writing of poetry; they put down by law the acting of plays. And with what result? Each man being sternly commanded to live strictly within the bounds of his own little sphere, however ugly

and narrow, the waters of human nature, thus imprisoned, festered, and, when the Restoration came, flooded England with corruption. Much of Epicurus's teaching is in accordance with the highest truth known to us, yet he seems to reach such truths by a meaner path, so that the splendour of many of his precepts is tarnished and made sordid. Thus we find in the Gospels, as well as in Epicurus, the promise of a Peace which shall deliver men from Care and Fear, but the Peace which the former promise is the noble one which can exist in the presence of danger, the peace of the man whose table is spread in the presence of his enemies. Again, with the advice to live in obscurity, not to seek after publicity or high place, we may compare the Christian feeling as seen, for instance, in the tablet erected in memory of a village priest in Brittany :

'Amavit nesciri et pro nihilo haberi.'

('He loved to be unknown and held of no account.') Yet how different is the spirit of the two parallel doctrines. Epicurus reaches the same position, but on a lower plane. The motive of Epicurus's precept is chiefly, not wholly, caution, with the aim of avoiding the harassment and the excessive occupation of a public life ; the motive of the other is humility, the well-founded dread of the spiritual dangers of flattery and public applause. Much that Epicurus says is noble, yet we feel at times glad to break away from him, just as we feel glad to escape from some low-roofed room, where we cannot breathe freely and have to stoop as we walk.

Epicurus's dislike to politics carried him so far that he used to ridicule and disparage the great names of patriots revered in Greek homes—a Miltiades, a Themistocles, an Epaminondas. Since he despises valour we are not surprised to find that he also scoffs at the notion of a personal 'sense of honour' as a high-flown and unreal thing,[1] yet we find Greek commanders and Greek

[1] See sentences 42-46.

statesmen constantly appealing to that sense of honour both in war and peace, and evidently not in vain. Thus it is not wonderful that Epicurus's philosophy was branded by the best of his countrymen as 'unmanly.' The Epicurean withdrawing from public life, partly because he despaired of it, partly to prevent his own peace of mind from being disturbed, reminds us of those who in time of plague fled from their city, full of the sick and the dying, to a country seat, where they passed their time in feasting and story-telling. Their conduct might be prudent. We cannot praise it further. In this extremely non-ideal world it is left to each man either to become an accomplice in the wrong which is being done before his eyes, or to make a beginning of justice for himself with his own right hand, and, it may be, at his own personal risk. We can respect no one who on any excuse—let his excuse be the finest in the world—evades taking his part with his fellows in the mêlée when it comes his way, either as citizen or as patriot. The Epicurean, living contentedly on bread and water, enjoying intellectual converse with his friends, listening to the hum of the bees about the flowers in his garden, delicately tasting the pure air and appraising the lovely hues of clouds and sky, may look down with pity on the common herd whose notions of pleasure are nothing if not sensual; yet, after all, the philosopher who shuts himself off from the vulgar harassments and risks of civic or national life may perhaps be more profoundly self-indulgent than the common man he so pities, who boasts how many cups his head will stand. For all his asceticism the philosopher is but a sensualist in his turn, though a sensualist of a refined and subtle type. Of how many a scholar who forgets in the anodyne of books the facts of his own and his neighbours' lives is this true! The pietist who, while passive against evil circumstances, lives in a fond dream of fancied submission to the will of God—a dream which does but hide from himself his own actual fatalism—suffers from a still more dangerous form

of the same disease. Wherever flies the ignoble standard of *Laissez-faire*, there we recognize the modern Epicurean. He has neither the excuses nor, as a rule, the virtues of the ancient one.

As we read Lucretius's great poem, it seems a strange thing that, though he had seen all Italy ablaze, first in the Social War, in which alone 300,000 men are said to have been slain, and then in the Civil Wars; though he had seen the commonwealth shaken by the insurrection of Spartacus and by the conspiracy of Catiline, yet his poem offers us no picture or even reflection of these stirring times. We find ourselves wishing for some influx into the poem of personal interests, of the stir of actual events, of the human actors on the stage of the Roman world in the first century before Christ. Think only of one of the great crises which Lucretius had seen, when in 72 B.C., the poet being then a young man of about twenty-three, the Thracian gladiator, Spartacus, and some seventy of his comrades, burst out of Capua, and fortified themselves in the extinct crater of Vesuvius, and at once, all over Italy, the slaves, maddened by hardship and cruelty, and sick of life in the Ergastula—the huge slave-barracks or private prisons, hells, where they were treated more like brutes than men—flocked to join his standard, a hundred thousand of them before the end. After in vain attempting to persuade his followers to cross the Alps, and found a kingdom beyond the reach of Rome, Spartacus abandoned his grand design, turned back, and for more than two years held all Italy at his mercy,[1] from the foot of the Alps to the Sicilian straits. After defeating

[1] The instinct of retributive justice, rather than of vengeance, is seen in Spartacus's compelling 300 Roman captives to fight as gladiators at the funeral games held in honour of his lieutenant, Crixus. All along he used his victory with great moderation. Three thousand Roman prisoners were found alive in his camp. Very different was the behaviour of the Roman generals. Six thousand of the slaves were crucified by Crassus along the road from Rome to Capua, and a body of 5,000 fugitives were slain to a man by Pompey.

many a Roman army under consul and prætor, at last he stood gloriously at bay, and, after killing his war-horse in front of his army, died like the brave man that he was. Here is an eruption of fires fiercer than those sleeping below the old vine-clad crater where the handful of outlaws made their first stand. Why does this outburst of down-trodden and desperate men make our hearts beat? Because we all feel that there are things more satisfying to the human heart than a lifetime of mere safety and quiet. What if the struggle failed of final success? Yet men are so made that to gain freedom they will face all hazards, and the short triumphant uprising of the oppressed against their oppressors largely blots out many a year of misery. A career like the brave gladiator's makes us feel that the—

> 'Divine tranquillity
> Sought after by the wisest of the wise,'

is but a poor thing, and may be purchased far too dear. Beyond all question Epicurus and Lucretius were fighters too, and brave ones, though not with the sword. But the passionate fervour with which Lucretius attacks superstition is utterly inconsistent with the placid tranquillity which Epicurus preaches. Nor could we admire both Lucretius and his master as we do, were not both of them better than their creed.

CHAPTER XVI

POETRY AND SCIENCE

UNLIKE other books of which the subject-matter is mainly scientific, Lucretius's poem has a twofold aspect, one being its relation to science, and the other its relation to literature.

Up till the middle of last century Lucretius's science was viewed as a mere craze on the part of a man of genius putting old exploded theories into verse, and readers used to be advised to pass over the passages dealing with the atomic theory.[1] The value of Lucretius's bold attempt is now better understood. It is impossible to study the 'De Rerum Natura' without feeling that, entirely apart from its theological motive, Lucretius shows a keen intellectual passion for scientific research. It is a vivid delight to him 'to make his way into Nature's secret hiding-places'—

'Cæcasque latebras
Insinuare omnis,'

and he glories in his master Epicurus having been the first to 'burst open the fast bars of Nature's doors'—

'Effringere ut arta
Naturæ primus portarum claustra cupiret.'

[1] This feeling was expressed in a striking way by Professor Wilkie, of St. Andrews, a man with a touch of genius, who before Burns wrote poems in Lowland Scots. He had a great admiration for Lucretius, and expressed it in a way so apt that its homeliness may be excused. Across the street from him there lived a shoemaker famous for his skill on the violin. Wilkie used to say: 'Lucretius minds me aye on John Tamson ower the street. John keeps hammerin' at a sole a' the day, dunt! dunt! dunt! but whiles he lays doun the sole and taks up the fiddle like this'—swinging his elbow—'and, man, it's rael bonny.'

Beyond question he shows much of the genuine scientific method in the manner according to which he pursues his inquiries. The modern scientific man may, indeed, smile at the air of rigid and unswerving scientific method which Lucretius sometimes assumes, while in the act of giving for some fact of Nature an explanation which we can now easily see to be arbitrary and baseless. At the same time, Epicurean science deserves the credit of a careful and methodical examination of many natural phenomena, and of conclusions regarding them, which are as accurate as without the help of experiment could be looked for, and are often surprisingly near the truth.[1]

The great prophet of inductive science only did justice to Epicurus when he praised him for restricting physics entirely to the search for natural causes. In the 'Advancement of Learning' Bacon says:

'For the handling of final causes mixed with the rest in physical inquiries hath intercepted the severe and diligent inquiry of all real and physical causes, and given men the occasion to stay upon these satisfactory and specious causes, to the great arrest and prejudice of further discovery. For this I find done not only by Plato, who ever anchoreth upon that shore, but by Aristotle, Galen, and others, which do usually likewise strand upon these shoals of discoursing causes.[2] For to say that "the hairs of the eyelids are for a quickset fence about the sight"; or that "the firmness of the skins and hides of living creatures is to defend them from the extremities of heat or cold"; or that "the bones are for the columns or beams whereupon the frames of the bodies of living creatures are built"; or that "the leaves of trees are for the protecting of the fruit"; . . . and the like, is well inquired and collected in metaphysics, but in physics they are impertinent—nay, they are indeed but *remoras*

[1] This does not hold good of Epicurus's notions about astronomy. Here he was far behind his age. Epicurus simply ignores the discoveries of Eudoxus, who was born a whole generation before him.

[2] That is, causes which run outside of their proper province.

and hindrances to stay and slug the ship from further sailing, and have brought this to pass—that the search of the physical causes hath been neglected and passed by in silence. And therefore the natural philosophy of Democritus and some others who did not suppose a God or reason in the frame of things, but attributed the structure of the universe to infinite essays and trials of Nature . . . seem to me (so far as we can judge from the fragments and remains of their philosophy) much more solid, and to have gone deeper into Nature, with regard to physical causes, than the philosophy of Aristotle and Plato. And this for the sole reason that Democritus and the others never meddled with final causes.'[1]

If we take, for example, Lucretius's explanation of the cause of thunder, or of earthquakes, or of the eruptions of Ætna, we find a most praiseworthy accuracy in observing and collecting all the facts of such phenomena, and stating these simply and as they bear on each other. He next discusses the possible causes at work, explaining the mode of operation of each from what we daily observe in the world, and fixes shrewdly enough on the actual one. He acts on the spirit of Bacon's precept: 'All depends on this—that we never turn aside the eyes of the mind from the facts of Nature, and so receive their images exactly as they are.'[2]

These qualities are specially noticeable in his explanation of the way in which the magnet attracts iron.[3] He first reminds us that minute particles are constantly streaming off the surface of every substance. These emanations never cease. The efflux of particles from the magnet is quite unlike that from any other body. There proceeds constantly out of it an exceedingly violent current of atoms—so strong that it pushes out the air and creates a vacuum in front of the magnet. Then, when a ring of iron is placed near the stone, a great number of particles of the iron rush forward into the

[1] 'The Advancement of Learning,' book ii., vii. 7; and 'Instauratio,' iii. 4. [2] 'Instauratio,' Preface. [3] vi. 906-1089.

vacuum.[1] Since no other substance is formed of atoms more intricately entangled or more solid than those forming iron—in consequence of this peculiarity of its atomic structure, when a large stream of its particles have moved forward, the whole mass cannot help speedily following. But why should the iron rush into the empty space? The reason is that the air 'beats on' (*verberat*) every substance on all sides, and wherever a vacuum is formed the pressure on every side naturally forces the iron in the one direction where a passage is open. Lucretius distinctly realizes the force of atmospheric pressure.[2] Moreover, the very resistance offered by the solidity of the iron makes the air more active in forcing it on. The air penetrates into its passages, and striking on its substance, impels it forward from within as well as from without. 'The air makes its way subtly through the frequent pores of the iron, even to its minute parts, and thrusts and pushes it on as does the wind a ship and its sails.'[3] In another way, too, the air inclines the iron to move. All substances are porous, and therefore must have air within them. This inner air is constantly moving to and fro, and makes a stirring in the substance of the iron. Thus, as soon as the iron has begun to move under the influence of the magnet, the

[1] 'Extemplo primordia ferri.
In vacuum prolapsa cadunt coniuncta.'

Mr. Munro translates, 'Forthwith the first-beginnings of iron fall headlong forward into the void in one mass.'

[2] The poet's argument here is completely overthrown, as Munro points out, by the fact that the magnet works equally well in a vacuum.

[3] We may compare iv. 877-906, where Lucretius, in explaining how the human body is set in motion by the will, again assigns a secondary part to the air in assisting and increasing motion after it has begun. When the human body has begun to move, its pores are opened (how or why Lucretius does not say), and the air, which is ever ready to enter, flows in great quantity into the inmost parts of the body, and striking on its substance, impels it onward, just as the wind beating on the sail drives on a ship.

motion of the inner air tends to carry it onward. Why, then, is iron attracted, but not other things? Some substances, like wood, are so porous that the streams of air, instead of pushing them forward, flow right through them. Lead, again, is too heavy to be carried forward in such a way.

Lange finds the following difficulty in Lucretius's explanation: 'How is it possible that the currents from the magnet can expel the air without repelling the iron by the same force?' But Lucretius has specially guarded against this very objection (at ll. 979-997). He points out that the pores of different bodies differ widely. 'The nature of the passages' allows one thing to pass, but refuses to admit another to enter the same substance. Thus the current from the magnet 'swims through'[1] the pores of the iron because there is a special adaptation between the structure of these pores and the particles of the magnetic current.[2]

After Lucretius has given us his explanation, no doubt we are still disposed to ask many questions. At the same time, as Lange has said, Lucretius deserves credit for explaining the magnet's operation, not by the assumption of any mystical *horror vacui*, nor yet of any secret force or special sympathy, but as a consequence of the specific gravity and structure of the iron. This praise is well deserved. According to his fifth proposition, as

[1] 'Tranet' (vi. 1052). So of 'images,' which can pass through glass, because its pores are straight and parallel ('Recta foramina tranant.'—iv. 601).

[2] According to Diog. L. (ix. 47), Democritus wrote a treatise on the magnet which no doubt influenced Epicurus. Democritus, says Zeller, 'thought that the magnet and the iron consist of atoms of similar nature, but those of the magnet are less closely packed together. As, on the one hand, like draws to like, and on the other all moves in the void, the emanations of the magnet penetrate the iron and press out a part of its atoms which, on their side, strain toward the magnet and penetrate its empty interspaces. The iron itself follows this movement, while the magnet does not move towards the iron because the iron has fewer spaces for receiving its effluences' ('Griechische Philosophie,' 1892, p. 863).

we have seen, there is nothing but matter and void in existence. Therefore Lucretius is not misled by any notion of magnetism as an 'element' by itself, or a 'special fluid' or 'principle' of one kind or another. He treats the phenomena of magnetism *simply as properties of matter* residing in the molecules of the magnet. Here we see how great is the vantage-ground of Epicurean science.[1]

Epicurus has been charged with an unscientific spirit on the ground of his explanations of astronomical phenomena, such as the rising and setting of the heavenly bodies, the waning and waxing of the moon, eclipses, and so on. He insists most emphatically on the principle that, when two or more explanations are possible, we must not fix upon one only and assert that it is the true cause.[2] Thus, with regard to thunder, after offering several hypotheses and explanations, he says: 'Thunderbolts may be produced in a number of other ways, only let us have no fables of Divine action,[3] and we shall have no such fables if we follow the observed facts faithfully where we offer an explanation concerning those facts which cannot be observed.' Too much must not be made of this, however. Epicurus lays down this principle with regard to astronomy in particular, which he thought was not yet a science. Thus he says we may explain

[1] Lucretius's explanation shows how his favourite doctrines, such as the streaming of emanations from all bodies and the porousness of all matter, could be made practically serviceable as working hypotheses. 'He dwells on the magnet at what appears so disproportionate a length, because the phenomena seem to him to illustrate so many of his favourite first principles. The elaborate criticism in Galen., 'De Nat. Facult.,' i. 14, of Epicurus's theory of the magnet, extending over many pages, proves that the latter must have dwelt on the subject at as great length as Lucretius does, and that he explained the phenomena in a similar manner' (Munro on vi. 917).

[2] See Lucr., v. 520-770, and the Epistle to Pythocles in Diog. L. In the Œnoanda inscriptions (No. 21, Usener) the same doctrine again encounters us.

[3] *μόνον ὁ μῦθος ἀπέστω* (Diog. L., x. 104).

the waning and waxing of the moon in various ways, 'unless one is so in love with the single-explanation method[1] that he foolishly rejects all the others, having failed to observe what is possible for a man to judge of and what impossible, and therefore tries to solve questions which are insoluble.' Beyond question Epicurus keenly realized how little ground science had in his own day conquered. This cautious attitude, this suspension of judgment, is, indeed, one chief characteristic of the truly scientific habit of mind.

How often and with what satisfaction does Lucretius refer to the fixity of natural laws! The certitude of the *fœdera naturæ*, a world with steadfast order in it, is what a mind like his demands. In Lucretius's day the observer was encountered by the miraculous everywhere. Innumerable phenomena, it was thought, could only be due to special Divine action, working counter to the ordinary course of Nature. But to Lucretius a disorderly *Natura rerum*, with different Divine powers pulling strings to counteract each other, was a thing unthinkable. '*Each thing*,' he repeats, 'has its properties fixed, and *must keep its deep-set boundary-mark*.' In his sixth book he takes up one marvel after another and reduces it with much effort and ingenuity under the laws which govern the rest of the world. For example, the various places called 'Avernian' were held to be specially near one or other entrance to the domains of the Infernal Gods, who by their influence dragged down the souls of the living; but Lucretius explains that these spots are fatal to human life because of the deadly gases which the earth there exhales. Again, the marvellous fountain of Jupiter Ammon, which was hot by night and cold by day;[2] the yearly inundations of the Nile, and

[1] τὸν μοναχῇ τρόπον (Diog. L., x. 94).

[2] Not, he explains, because the sun below the earth warms it by night, as the priests fable, but because the earth about the fountain contains many seeds of fire. By night the earth becoming cold condenses and forces these seeds out into the water; by day the sun rarefies the earth, and they return to their places.

so on. All things, he tells us, must keep the conditions and terms allotted them. 'The causes which have been from the first-beginning of things' compel all phenomena to 'return in due sequence and after a fixed order'[1] (*ordine certo*). With these laws no Will, Divine or human, nor yet Spontaneity atomic, shall tamper. Lucretius is determined that no corner shall be left for miracle to run riot in.

In his grateful eulogy on Epicurus, Lucretius says that his master 'pointed out what evils existed everywhere in the affairs of men, rising up and flying about in manifold ways by some natural—call it chance or call it necessity, because Nature had so ordained, and *from which gate you must sally forth to encounter each.*'[2] Could anything more perfectly describe the attitude of the man of science in every field? Take, for instance, the skilled physician. On the one hand, he carefully collects the facts and explores the whole mode of attack of the disease; and, on the other hand, he selects the exact means at each stage to encounter it, and 'makes his sally from the right gate.' Only one step more, and Lucretius would have arrived at Lord Bacon's great cardinal maxim: 'Nature is conquered by obeying her.'

One very characteristic feature of Lucretius's poem, in point of literary treatment, is the admirable power of illustration by which he can bring home to us a scientific doctrine through the means of something going on before our eyes in the world. Putting aside their beauty of

[1] 'Namque ubi sic fuerunt causarum exordia prima
Atque ita res mundi cecidere ab origine prima
Consecuë quoque jam redeunt ex ordine certo.'
v. 677-679.

[2] 'Quidve mali foret in rebus mortalibu' passim
Quod fieret naturali varieque volaret
Seu casu seu vi, quod sic natura parasset
Et quibus e portis occurri cuique deceret.'
vi. 29-32.

Lucretius thought of Nature as at once both Chance and Necessity.

poetic expression, these illustrations are in each case singularly close to the point. Their accuracy shows that, as Professor Tyndall has said, Lucretius possessed a strong 'scientific imagination.'

For example, this is how he illustrates the doctrine that the atoms are eternally in motion, even though matter appears to our eyes to be at rest: 'Thus often the woolly flocks as they crop the glad pastures on a hill, go creeping on whither the grass gemmed with fresh dewdrops invites and attracts each one, and the lambs full-fed are gambolling and butting each other in play—all which objects appear to us from a distance to be blended in one, and to be like a white spot resting on the green hill.' A second illustration of the same doctrine is taken from the pageantry of war. 'Again, when mighty legions wage a mimic war and cover the plains with their swift movements, there the glitter rises to the sky, and the whole earth around gleams with brass, and beneath a noise is raised by the mighty trampling of men, and the mountains, smitten by the shouting, fling back their voices to the stars of heaven, while the horsemen hurry to and fro on the flanks, and suddenly charge across the plains, shaking them with their mighty onset.'[1] How vividly Lucretius makes us see the legions in evolution, with their armour flashing in the sun, and hear their mighty tread! But still more impressive are the two following lines:

> 'Et tamen est quidam locus altis montibus unde
> Stare videntur et in campis consistere fulgor.'

'And yet there is some place on the high mountains, from which they appear to stand still and to be a bright spot at rest on the plain.' In two short lines Lucretius shows us how small is all human activity, in mere bulk, as compared with the vastness of Nature—the mighty legions with their thousands of men constantly marching and countermarching at full speed, seen a few miles away,

[1] ii. 317-330.

appear only a small bright spot. Yet he could have chosen no better illustration to bring home to us how the tiny atoms may be in the most violent and constant motion, while the matter which they build up appears to us to be at rest.

While these illustrations are thickly scattered over the poem, when we come to examine them singly, we find that every one strictly illustrates the doctrine under which it is introduced. Lucretius enjoys weaving them in as pieces of pleasant colour into the somewhat grim framework of his poem, but not one is introduced merely as an episode. In each case the illustration makes plain to us a point which, without it, we should feel difficult to grasp. If we examine any one, we find how strictly it bears on the special doctrine under discussion. For example, that of the cow whose calf has been taken away to be sacrificed, and which keeps searching everywhere, returning again and again to wood and pasture and stall in the hope of recovering it. How does Lucretius introduce this, one of the most pathetic passages in all literature? It occurs in the strictest sequence. Lucretius is proving that the atoms are not all of one pattern, but that they are of many different shapes, and that this diversity explains why each individual of every species of living things differs from the other in appearance and form. Thus, the animals recognize each other's individuality as much as human beings do; every parent knows its own offspring, and the cow robbed of its calf can never be satisfied by the substitution of any other, but seeks persistently 'something special and known.'

'And in no other way could child recognize mother or mother child; and this we see that they all can do, and that they are just as well known to one another as human beings are. Thus, often in front of the beauteous shrines of the Gods a calf falls sacrificed beside the incense-burning altars, and spirts from its breast a warm stream of blood; but the bereaved mother, as she ranges over

the green lawns, notices the footprints stamped on the ground by the cloven hoofs, scanning with her eyes every spot to see if anywhere she can behold her lost youngling ; then she fills with her moanings the leafy wood each time she desists from her search, and again and again goes back to the stall pierced to the heart by the loss of her calf : nor can the soft willows and grass quickened with dew, and yon rivers gliding level with their banks, comfort her mind and put away the distress that has entered into her, nor can other forms of calves throughout the glad pastures divert her mind and ease it of its care : so persistently does she seek something special and known.'[1]

There must at bottom have been a kind and loving nature in the man who could read so keenly the signs of suffering in the animal creation as Lucretius has here done. Is there not something specially tender in the touch which tells us how not even the pasture-ground with its dear and familiar landscape—the drooping willows, the cool and dewy grass, and the river gliding past brimful — could make the cow forget her sorrow ? If animals have any distinct love for the spot where they have been bred, surely it is bound up with just such associations of shelter, ease, and plenty. Too often we ignore the unhappiness which at times the lower creatures must suffer. Does not Lucretius actually dignify the suffering of the poor dumb creature, in its cruel bereavement, simply through the human sympathy with it, which he is not ashamed to express ?

Lucretius's poem shows that he must have been a close observer of Nature. The manner in which he musters facts from all quarters to illustrate any given doctrine shows what a grip he could take of general principles. Beyond question, in this way he contributed something to the science of Epicureanism beyond what he found in the treatises of his master. For example, when he is explaining the different sounds of thunder as the noise produced by the clouds, when buffeted or burst by the

[1] ii. 349-366. I quote mainly Munro's admirable rendering.

wind within them, he gives, as an instance of sound produced in a similar way, the loud flapping of a canvas awning over a large theatre, when it is tossed up and down by the wind, or, again, the harsher sound heard when the wind tears it. Again, he shows in the following way that there are forces in Nature which we cannot see except in their working.[1] First of all, he describes a violent storm, and points out that the wind, though its particles are minute, acts in exactly the same way as a stream in flood. Further, he says, we perceive smells, though we cannot discern their cause. Clothes hung up by the seashore become moist and are dried again by the sun, though we see no particles either come or go. In course of years the ring worn on a finger grows thinner, the dripping of water from the eaves hollows a stone, the pavement in the street is worn down by the feet of the passers-by. The hand of the brazen statue at the city gate is wasted away by the touch of those who salute it. The rocks by the seashore are eaten away by the salt spray, but we can perceive this gradual waste no more than we can discern the slow, gradual increase occurring in the growth of plants. In all these cases we are certain that things have become worn away, but 'the nature of vision' prevents us from seeing the particles which, at any given moment, disappear. Thus, Lucretius proves that 'Nature works by unseen bodies'—

'Corporibus cæcis igitur natura gerit res.'

These facts from Lucretius's daily observation by field and shore and street appear homely enough when thus abstracted, but they one and all bear rigidly on the point which he is illustrating. At the same time, how comes it that Lucretius's river in flood and torrent of storm in the air never for a moment remind us of the illustrations which are so plentiful in the modern science text-books? Why do we feel that they are not mere diagrams inserted to illustrate his text, but pictures?

[1] i. 265-328.

'The force of the wind when roused beats on the harbours and sinks huge ships and scatters the clouds; sometimes it rushes over the plains in a swift whirlwind and strews them with great trees, and lashes the mountain-tops with forest-crashing blasts: so madly does the wind rave with shrill howling and rage with a threatening roar.[1] Winds, therefore, beyond question, are unseen bodies. . . . They stream on and spread destruction abroad in just the same way as does the soft and yielding water when the river comes down all at once in spate, while a great downrush of water from the high mountains feeds it with copious rains, hurling together branches torn from the forests and whole trees; nor are the strong bridges able to sustain the sudden assault of the flood coming on—in such wise does the river, wild with much rain, dash against the piers with mighty force, and overthrow them with loud crash, and roll along the great stones beneath its billows; wherever anything opposes its waves, it hurls it down. In this way, then, must the blasts of wind, too, rush along.'[2]

[1] Or, if the MS. reading be correct,

'Sævitque minaci murmure pontus'—

'while the sea rages with a threatening roar.' The deep roar of the sea and the shrill howling of the wind are the two contrasting notes of the storm.

[2] i. 271-295. It is worth while to compare the powerful description of a storm from the hand of an English writer whose method of painting Nature has, I think, much akin to that of Lucretius. It is from Charlotte Brontë:

'The wind . . . all day had blown strong and full from the south, without, however, bringing a speck of rain. Instead of subsiding as night drew on, it seemed to augment its rush and deepen its roar; the trees blew steadfastly one way, never writhing round and scarcely tossing back their boughs once in an hour; so continuous was the strain bending their branchy heads northwards—the clouds drifted from pole to pole, fast following, mass on mass; no glimpse of blue sky had been visible that July day.—It was not without a certain wild pleasure I ran before the wind delivering my trouble of mind to the measureless air-torrent thundering through space' ('Jane Eyre,' chap. xxv.).

This picture is not altogether unworthy of Lucretius himself.

Lucretius's picture of a river in flood is a perfect example of a force at work according to natural law; but it contains also something more—something which we may find in Wordsworth, but for which we might for ever search the pages of the science primers in vain. There is in it a touch of all that stirs the imagination in the grandeur of the flooded river. This wild torrent might pour down the hills of any region in fairyland, which the poets, who alone are the guides for that country, have explored for us. How few men have ever combined the scientific eye of the naturalist with a genuine sense of the surpassing beauty of the world's pictorial side! No gift is rarer. Many, indeed, presume to it, and many have attempted to unite both faculties; but in almost every case do we not feel this to be a mere presumption—something really ungenuine, however little meant to be so? If we put aside Goethe, possibly the only writer who has united a scientific instinct for the study of Nature with a real sense of the beauty of the world in colour and form is one of broadest humanity, by no means gifted with Lucretius's intensity of poetic expression, but holding, in gift of qualities of mind and character rarely united in the same man, a place in its way unique in literature—our own much-honoured Charles Kingsley. Almost any one of his books—from 'Yeast' to his 'Christmas in the West Indies'—will show what is meant. In neither Kingsley nor in Lucretius has the scientific standpoint driven out the sense of Nature's beauty as something beyond all analysis. Thus, in Lucretius's pictures of Nature, however introduced, there is a touch which raises them beyond mere illustrations of doctrines in physics. Indeed, it is wonderful

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Lucretius, too, would have delighted in just such a night of storm as Charlotte Brontë here describes. Both feel the same kind of joy—like children watching round the hearth—in observing Nature, the great Housekeeper, at her work, whether clearing up in storm or at her everyday duties. Both of them are, in the same fashion, at home with Nature.

how easily, by a mere word or two—like some great actor who can suddenly stir us to the heart by a simple change of tone—Lucretius can at any time rouse our feeling of awe in the very midst of a scientific discussion. Thus, in the middle of a laborious explanation of the cause of thunder, the line—

'Dant etiam sonitum patuli super æquora mundi,

at once brings before us the clouds moving slowly with solemn thunder high above the earth.

Lucretius has the gift, which belongs to great poets only, so to wed thought and words together as in a subtly potent way to stimulate the inner eye to see and the inner ear to hear. Thus, in the passage where he recalls the terrors of the Punic war-time, the line—

'Ad confligendum venientibus undique Pœnis'—

('When from all quarters the Carthaginians came marching to the fight') brings up to us first the deadly shock of battle, and then we verily hear the hurrying tramp of armed men, legion upon legion, and these the dreaded Pœni, yet all this told in one short line! This is the poet's magic whereby he suggests meanings more than the mere words convey.[1]

[1] In verse-music Lucretius is, of course, no peer of Virgil, with his wondrous variety of cadences. One often asks, What is the secret of Virgil's marvellous influence throughout the centuries over the heart of man? We hear lovers of the poet quote with almost reverent tone lines which seem to us more or less commonplace:

'Conticuere omnes intentique ora tenebant.'

There seems nothing uncommon here. But why does such a line take hold of us? In part, at least, it is because no other poet's verse suits itself so perfectly to the thought or emotion expressed. Of English poets, Beaumont and Fletcher are conspicuous for this quality; in their verse thought and metre move together like music and the dancer's feet, slow or swift, sad or cheerful. So in Virgil it is not only his large humanity, but also the perfect fitness of the word-music to the thought that haunts us, and makes his lines unforgettable.

The same quality is seen in Tennyson's line describing the Spanish admiral's fleet as it looms into view :

'With his huge sea-castles heaving upon the weather-bow.'

The repeated uneven rise and fall of the verse so affects the imagination that we actually see the great galleons rising unwieldily against the sky and sinking again.

In a passage like the following the words cannot be separated from the deep music which is theirs and unforgettably their own : indeed, the latter keeps chiming in the brain before we can recall the words themselves. Lucretius is picturing the awe with which men looked up to the heavens when the world was young :

'In cæloque deum sedes et templa locarunt.
Per cælum volvi quia nox et luna videtur
Luna, dies et nox et noctis signa severa
Noctivagæque faces cæli flammæque volantes,
Nubila, sol, imbres, nix, venti, fulmina, grando
Et rapidi fremitus et murmura magna minarum.'[1]

There is a music as mighty as Milton's, yet simpler, in the cadence of this passage. Note with what prominence the word *nox* strikes the ear, recurring again and yet again while the rhythm rushes on ever swifter and stronger to the crash of the closing words. From all the other details it is the sweep of the night through the sky and the awe of it which emerges dominant. Are we to call this art ? The music seems to wax all of itself like some mighty wind gathering strength as it blows. Only in great poets does the harmony swell so grandly.

How far will any metrical analysis explain the power of such a passage ? Little more than counting the petals and sepals can explain the charm of the primrose in spring, or than acoustics can account for the sadness of the winter wind. It is the great breath of inspiration blowing behind the words which causes them spontaneously to drop into harmonious order ; and in such case a music is produced grander than any which depends

[1] v. 1188-1193, translated at p. 267.

on conscious intent. In this instance, as often, one cannot help asking, Whence does Lucretius's inspiration come? Perhaps never from the highest regions of all. In the poet's nature certain of the finest human notes seem never to have been played upon. As it is, his nature vibrates in answer to all that is majestic and lovely in the outer world or pathetic in human experience with such swift reply as to suggest a deep capacity of spiritual emotion. In this Lucretius foreshadows Dante.

One passage of the poem is deeply significant of Lucretius's temperament. Hostile as he is to all rites of religion, even he is deeply impressed by the imposing procession of the Magna Mater—the image carried in state; the wild, intoxicating music of cymbal, drum, and fife; her escort dancing blood-stained to the clash of naked weapons; the crowd awestruck and hushed as if to receive some blessing dropping upon them; while those who stand near strew bounteous alms in the path, and 'snow down roses over the Mother and her priests.'[1]

> 'Cum primum magnas invecta per urbes
> *Munificat tacita mortales muta salute.*'

'Silently she gifts to men her boon of blessing that needs not words.' How well would this describe the feeling of devout worshippers at the Mass! It is the same emotional temperament which to-day attracts towards the ceremonies of the Roman Catholic Church even those whose intellect, like that of Lucretius, protests.

Lucretius's mode of painting Nature is in some ways unique. He possesses the keenest eye for the pictorial, or, rather, the picturesque, aspect of the world—that intense perception of the contrasts of light and shadow which is given only to the Latin race. We see it most notably in French literature, from the mighty hand which paints great and passionate pictures of tempest by sea and land in 'Les Travailleurs de la Mer,' down to the simplest tale of story-tellers like Erckmann-

[1] ii. 606-628.

Chatrian. The latter, if they describe but the interior of the meanest peasant's cottage, the coming-on of morning or of dark in a plain, unromantic village, or the early setting-in of winter among the Vosges, can make the scene stand before us vividly as if we saw the very spot, looked through the cottage window in the dark, or even felt the warmth of the logs crackling amid the deep silence of the frost. Lucretius, too, has this power, which makes us see the same landscape which he sees, and almost hear its sounds, and breathe its air with a vividness of picturing and lifelike projection which no other poet of the ancient world possesses. Through some magic vividness of sense the world around him was reflected in his consciousness so directly that, when we read, a curtain flies away : the earth and sky of Italy two thousand years ago are before us.

Take, again, his picture of the gathering tempest, when the darkness vast as of hell fills the great caverns of the sky, while phantom figures hover overhead amid the gloom before the breaking of the storm—

> 'Quod tum per totum concrescunt aera nubes,
> Undique uti tenebras omnis Acherunta reamur
> Liquisse et magnas cœli complesse cavernas :
> Usque adeo tætra nimborum nocte coorta
> Impendent atræ formidinis ora superne :
> Cum commoliri tempestas fulmina cœptat.'[1]
>
> vi. 250-255.

'For then the clouds close in a mass over the whole sky on every side, so that we might fancy that all its darkness had left Acheron,[2] and had filled up the great

[1] The solemn motion of these lines shows consummate mastery of verse. The unusual succession of spondees recurring at ll. 250, 252, and 255 is certainly intentional. In particular, the concluding line at once calls up to the ear the long slow rolling of thunder just before a severe storm.

[2] *I.e.*, the place of eternal darkness where the dead are. Acheron was a word of terror, like Cocytus and Styx, the very sound of which, says Plato ('Republic,' p. 387), 'makes all that hear them to shudder with fear.'

caverns of heaven : in such crowds do faces of black horror gather together amid the frightful night of storm-clouds, and hang over us from on high, at the time when the tempest is beginning to forge its thunderbolts.'

There is a touch here which no other poet can give us, unless, perhaps, it be Victor Hugo. Both he and Lucretius have at command words of the same strange and almost magic potency. Moreover, each of them constantly realizes the utter weakness of man amid the dread powers of Nature. And do not both poets convey to us the same sense of a background of tempest and terror surrounding our human life ? Widely as their creed and standpoint differ, both poets feel that there is in Nature an element of cruelty and treachery, while the French poet sees even something distinctly sinister in her expression at times. Heartily as Lucretius welcomes the discovery of Natural Law, believing that man is but the creature of the atoms, is it wonderful that he should look on Nature with distrust ? No poet, again, has ever made men feel, as Victor Hugo has done, the grim side of the world and the luridness of its beauty as of some marvellous sunset sky seen by seafarers in mid-ocean before a hurricane. The loveliest scene on earth cannot make him forget how terrible Nature is. Is it not the very intensity of Victor Hugo's sympathy, that noble, admiring pity for human toil and peril which is in him, deep and instinctive, as in no other poet—is it not this which makes him so often discern portents of fear in earth and heaven, and see the shadows even more than the brightness of the world ? Take, for instance, the passage where the homeless convict, Jean Valjean, after nightfall, leaves the town of Digne, where he has been repulsed from every door, in order to seek shelter in the open country. The sky is very dark, not merely with the night, but with clouds hanging low and stretching the whole way to the zenith, where they break, and from whence the still lingering twilight, aided by the coming moonrise, gleams down over the earth, so that earth

has more light upon it than has the sky. Field and hill glimmer vaguely against the gloom of the horizon. A single misgrown tree close to the wanderer shudders and twists in the wind. So grim, so hostile even, is the look of earth and heaven, that Jean Valjean stops and goes back to the town. In the poem entitled 'Horreur Sacrée' Hugo deals with this sacred mystery of Terror, which lurks behind all the most beautiful things in Nature, and which poetry must needs reflect :

'Rien de grand qui ne soit confusément sinistre . . .
L'épouvante est au fond des choses les plus belles. . . .
C'est qu'Horace et Virgile ont vu soudain le spectre
Noir se dresser ;
C'est que là bas, derrière Amaryllis, Électre
Vient de passer.
La Nature est en vain pleine de fleurs, de fêtes,
Et de pardons.
Les poètes ont beau rayonner sur nos têtes,
Nous entendons
Parler de sombre voix à Delphes, aux Propylées
Et dans Endor ;
Et la nuit a toujours des méduses mêlées
Aux astres d'or.'[1]

Another short poem on the wreck of a fishing-boat closes with an appeal to the

'Dieu jaloux, Dieu d'épreuve et d'effroi,
Dieu des écroulements, des gouffres, des orages.'[2]

And, indeed, the God whom Victor Hugo names so often is chiefly a God of terror. The chief aim of His dealings with us is to make men feel that they are impotent, the mere plaything of His almighty power. It is at times very hard to distinguish such a God from Fate, from Lucretius's *vis abdita quædam*, the blind force which seems to leap into personality as with an apparent

[1] 'Quatre Vents de l'Esprit.'

[2] 'Les Châtiments,' book vii., 8. Note the marvellous description of the sea raging at night :

'Les bouches de la nuit semblaient rugir dans l'air,' etc.

joy it wrecks the mightiest works of man. Euroclydon, as he sweeps to destruction the Roman admiral with his fleet, seems to delight 'to make sport for himself' of the dread rods and axes.[1] They are as nothing to him.

But even in their view of Nature how widely do the two poets differ! Is not this the central idea of Victor Hugo's wonderful romance, 'The Toilers of the Sea'—namely, that even Nature has to bend before the will of a man who is inspired with a great emotion? But to Epicurus and Lucretius man is only the plaything of the mighty forces about him. In front of Lucretius's great pictures of Nature the human figures seem at times insignificant. Dazzled by the newly discovered *majestas rerum*, Lucretius forgets that though man may seem to be driven before the storm of physical forces as an insect is blown about by the winds, yet has he in him that which is mightier than they. Never, perhaps, has the essential supremacy of man over opposing Nature been so grandly expressed as by the Greek poet Parmenio. He refers to the great engineering works carried out by Xerxes in preparing for his invasion of Greece:

'He made the paths of Ocean and of Earth change place: he marched on foot across the sea, and sailed across the land, yet Sparta's valour stayed his course with only thrice a hundred spears. Be ashamed, O mountains! and O seas!'[2]

In Lucretius's readiness to realize by imagination and to feel for the suffering, the pain, and the fear which must exist alike among men and among animals all over a

[1] v. 1233-1235.

[2] τὸν γαίης καὶ πόντου ἀμειφθείσαισι κελεύθοις,
ναύτην ἠπείρου, πεζοπόρον πελάγους,
ἐν τρισσαῖς δοράτων ἑκατοντάσιν ἔστεγεν ἄρης
Σπάρτης. αἰσχύνεσθ', οὔρεα καὶ πελάγη.

If this short poem only existed in some other language, adequately rendered, its Greek origin would yet cry aloud, such is its perfection of form, while yet every word appears natural and inevitable, leading up to the lightning-stroke of the closing line.

world like this, where 'the whole creation travails together in pain,' there is an almost modern note. Thus, for instance, when he speaks of the lonely places of the earth which are 'filled full of quaking and terror' because of the fierce beasts of prey which the other creatures dread—

> 'Ita ad satiatem terra ferarum
> Nunc etiam scatit et trepido terrore repleta est
> Per nemora ac montes magnos silvasque profundas.'[1]

Yet is not Lucretius's feeling overstrung here? Probably neither he nor the French poet possessed at all that instinct of the hunter, shared by him with the wilder creatures, which saves us from confounding their emotions, either in degree or kind, with those which belong specially to man. It has been truly said by one who knows them: 'Wild nature is exceeding wild. . . . Wild things, when hurt or in peril, wish either to run or to fight. . . . Their organization is not capable of suffering such as man endures. A large proportion of them die in conflict with one another, and the hot blood of fight and the "joy of battle" render them, to a large degree, oblivious of pain. The woods and fields cannot justly be considered by anyone who has penetrated into their secrets as arenas of awful tragedies.'[2] To Lucretius so cheerful a view would have seemed an illusion. He can seldom forget that the world has its dark and shadowy places, and that Nature, if not malignant, has no mercy.

I have spoken of the beauty of Lucretius's illustrations. It is necessary to note that every such apologue which delights us by its beauty and freshness is also a demonstration of some doctrine. 'There is, properly speaking, no episode in the poem,' says Martha. Lucretius's purpose is too keen and fixed to allow him ever to wander in any by-path, however tempting. Gladly

[1] v. 40.
[2] C. D. Wilson in *Lippincott's Magazine*, August, 1894.

would the reader follow him at times off his iron-bound pathway of Epicurean teaching to some detail of personal history, or of individual preference, or of the part played by himself in the busy world of Rome. But this he never gives. Though a man of his keen and passionate nature must have had an intense and possibly an eventful life, though the peculiar tone of his preaching against ambition and the mad Roman lust for power and pleasure might tell us that he, too, had played high for the prizes of the world (such, at least, as appealed to his nature) in his day,[1] still he never allows himself to dwell on any detail of his own past history. He is too absorbed in his mission of preaching salvation and peace, after the manner of Epicurus, to a suffering world. Not improbably, indeed, his conversion to Epicureanism did not occur till the later years of his life, and not long before he commenced his poem.

The English reader who has heard much of Lucretius's imagination and poetic charm is somewhat astonished when he finds the earlier part of the poem composed in great part of passages containing scientific argument and proposition of the most close and exact kind. When he comes to a passage like that beginning—

> 'Quod si forte aliquis credit graviora potesse,
> Corpora, quo citius rectum per inane feruntur,
> Incidere ex supero levioribus, atque ita plagas
> Gignere, etc.'

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[1] May we infer from iii. 170-174 that Lucretius had at some time been wounded in battle? At all events, he analyses the sensations following after a severe wound as if from personal experience:

> 'Si minus offendit vitam vis horrida teli
> Ossibus ac nervis disclusis intus adacta,
> At tamen insequitur languor terræque petitus
> Segnis, et in terra mentis qui gignitur æstus,
> Interdumque quasi exurgendi incerta voluntas.'

Again, in book iv., he certainly speaks as one who had experience of passionate love, seemingly for one who was not worthy of him.

and so on for many verses, in which Lucretius tries to prove that heavy bodies do not fall more quickly than lighter in the void, he naturally asks, 'Is this long scientific discourse poetry?' To this we would answer that the poem is penetrated through and through in its most severe and protracted reasonings, its plainest and most matter-of-fact statements, by the earnest purpose of the poet. It is this that turns the prose of it to poetry, and informs the plainest line with feeling. He frequently reminds us that the aim of his inquiry is not scientific, but to overthrow superstition. The atomic philosophy which he has stated with such care, and defined in its every doctrine with utmost exactness, is the foundation on which he hopes to build a system that shall deliver man from care and fear, and make it possible for him to live his life aright. This burning earnestness of purpose extends from the passionate poetry of the prologues even into the most arid discussions, so that even here Lucretius still holds the reader, and 'he cannot choose but hear.' But it is not merely earnestness—there is also a strong personal attraction in Lucretius. His chivalrous boldness draws us to him. The reader who studies him heartily follows by a kind of charm his figure in the front, keeping his daring road, and does not desert the poet even when he leads through waste and stony places.

It is remarkable how completely Intellect and Imagination work in harness in the 'De Rerum Natura.' Nothing but the very strongest fire of feeling could have enabled him so to master such weighty subject-matter. No other poet has ever soared upward carrying with him so heavy a load; yet Lucretius does lift the burden which would chain other men to earth, and even make his relation of Epicurean doctrines in great part lucid and beautiful. Doubtless this strong white heat of his soul, which alone could fuse such materials, made the writing of his poem in the last years of his life a most exhausting labour. He speaks of spending the quiet nights in com-

posing it.[1] Even in sleep, he tells us, his mind still labours at the same task of investigating the nature of things, and striving to commit it to verse.[2] All through the poem he speaks like a man ever driven on by some consuming passion until the labour he has set himself is finished, and who is unable to take rest in any halting-place by the way. So strong and impetuous is the tide which rushes on from the first verse of the 'De Rerum Natura' to the last, that the energies of the poet may well have been wasted in its mighty and unfailing flow.

[1] 'Quemvis sufferre laborem
Suadet et inducit noctes vigilare serenas,
Quærentem dictis quibus et quo carmine demum
Clara tuæ possim præpandere lumina menti,
Res quibus occultas penitus convisere possis.'
i. 142.

[2] 'In somnis . . .
Nos agere hoc autem et naturam quærere rerum
Semper et inventam patriis exponere chartis.'
iv. 965-970.

Compare ii. 729:

'Dicta meo dulci quæsita labore.'

And iv. 419:

'Conquisita diu dulcique reperta labore
Carmina.'

CHAPTER XVII

WHAT THE WORLD OWES TO LUCRETIUS—HIS TEACHING AND PERSONALITY

THERE is much *apparent* reason to justify the belief that Lucretius's system was in reality atheistic. According to his master Epicurus the Gods exist, but in nature and function they are utterly unlike the Gods hitherto adored by mankind. They are to be worshipped because of their excellence, not because they have power to help or to hurt human beings. They have nothing to do in the world or for it, but live supremely happy and supremely idle in a stormless, cloudless Epicurean heaven, situated in the intermundia—

> 'The lucid interspace of world and world,
> Where never creeps a cloud or moves a wind,
> Nor ever falls the least white star of snow,
> Nor ever lowest roll of thunder moans,
> Nor sound of human sorrow mounts to mar
> Their sacred everlasting calm.'[1]

For Epicurus's atomic explanation of the world they are entirely superfluous. Why, then, it is often asked, did

[1] From Tennyson's 'Lucretius,' a poem how true in its every touch of invention to the very spirit of Lucretius, to his confidence in the order of Nature, to his momentary doubt as to his master's doctrine, to his lonely, too contemplative habit of life, to the stern Roman sense of personal dignity which Epicurus has not. A true poet's insight has put in the mouth of the dying Lucretius the seemingly involuntary question, 'What is duty?' a question which Epicurus held to require no answer. Not so a lofty nature such as Tennyson has pictured.

not Epicurus, instead of thus pensioning off the Gods in the intermundia, entirely give up these meaningless shadow Deities? Thus many have thought, and among them so able a writer as Lange, that Epicurus really had no faith in any Divine existence whatever.

It is undeniable that Epicurus left the Gods no part whatever to play. His absurd, idle Deities, we need hardly say (though some writers[1] approve and admire Epicurus's relation to the Gods), could not be Gods to him or to any man except in name. In reality, where Matter is able to evolve Life, where there is no Divine Being (or only a nominal one), Matter is there the supreme and ultimate reality. The mighty torrent of atoms, streaming for ever through space, and capable of striking out worlds full of beauty and life by their combinations —this, in truth, is Lucretius's God.

It is thought by many that Lucretius's whole conception of the world is essentially irreconcilable with Divine action in any form. Nor is this surprising in the face of such passages as the following:

'Wherefore, when we have seen that naught can be created out of nothing, hence we shall now know more thoroughly that which we are seeking—namely, both the elements out of which everything can be produced and in what manner all things are done without the hand of the Gods.'[2]

Or again:

> 'Quæ bene cognita si teneas, natura videtur,
> Libera continuo, dominis privata superbis,
> Ipsa sua per se sponte omnia dis agere expers.'[3]

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[1] 'On one great point the mind of Epicurus was at peace. He neither sought nor expected, here or hereafter, any personal profit from his relation to the Gods. And it is assuredly a fact that loftiness and serenity of thought may be promoted by conceptions which involve no idea of profit of this kind' (Address delivered at Belfast by John Tyndall, 1874, p. 7).

[2] i. 156-159. [3] ii. 1090-1092.

'If you well understand these things and keep them in mind, Nature, free at once and rid of her haughty lords, is seen to do all things of herself and entirely of her own accord, without the aid of the Gods.'

Is not teaching like this distinctly anti-Theistic? it may be asked. Before this question can be answered it is necessary to consider what notion of a Divine government of the world as well as of human affairs prevailed in Lucretius's day. Was it a noble or an ignoble one? Or does he write out of mere antipathy to any belief in Divine Providence, when he boasts that Nature works of herself 'without the hand of the Gods'?

At first sight, judging from literature and history, we might believe that religion hardly existed in Lucretius's day. The cultured class at Rome, whom we may take Horace, though living a little later, fairly to represent, had come to realize the intellectual difficulties of belief. Moreover, in the fashionable society and artificial life of Rome disbelief was natural. But what of the vast, silent multitude—the husbandmen, craftsmen, soldiers, slaves, whose opinions counted for little or nothing in the State, whose lives and thoughts there was no one to record, but through whose toil the world of Rome was able to go on and extend her empire over every land—the men who grew her corn, who built and sailed her ships, forged her weapons, and fought her battles? It is among these, not in debates in the Senate or in the books of the period, that we must look for the religion of Rome. Why should we doubt that the Italian farmer, toiling all day, content with plain fare and simple pleasures, still held to the faith of his forefathers? Far away on some lonely outpost in the midst of barbarians the soldier, prepared to give up his life at any hour for the honour of Rome and of his legion, when he erected in the name of his cohort a rough-hewn altar, 'To Jupiter, the most Good and Great,' doubtless believed in his heart that the Gods would preserve him from evil, living or dying, if he did his duty. Men who often encounter

danger, it was observed by one who led an army and wrote books long ago, have a stronger belief in the providence of the Gods than those who live in safety. Moreover, those whose lives are spent in constant contact with Nature feel the Divine power to be nearer them than do those who live in cities.[1]

One cannot help asking, Was there much religious terrorism in Rome during Lucretius's day? If we are to believe Lucretius, it must have existed more or less. 'That fear of Hell,' he says, 'must be driven out headlong which troubles the life of man from its inmost depth, and overspreads all things with the blackness of death, and permits no pleasure to be pure and unalloyed.' He speaks of the terrors of the Roman Tartarology; the dread of 'being delivered over to the nether pit and black Tartarus, and those torments fabled to exist in the abyss of Acheron; . . . Cerberus and the Furies and the sunless gloom of Hell'; of 'Tartarus belching forth dread fires from its throat.'[2] Did these fabled terrors oppress the spirit and cast a gloom over life? Cicero tells us that no old woman was foolish enough to believe in them, but in this passage he has taken a brief to depreciate the Epicurean claim of having delivered the world from superstition.[3] We have the literature of Lucretius's day, but we have lost its folk-lore, which embodied the thoughts and beliefs of the many. In any

[1] The captain in Victor Hugo's 'Toilers of the Sea,' who, after the shipwreck, rebukes the profane Parisian with the words, 'Monsieur, nous sommes en pleine mer!' expresses the feeling of ordinary humanity.

[2] 'Nec quisquam in barathrum nec Tartara deditur atra
Atque ea nimirum quæcumque Acherunte profundo
Prodita sunt esse . . .
Cerberus et furiæ jam vero et lucis egestas.'
iii. 966-977, 1011.

See the whole passage 977-1023, closing—

'Hic Acherusia fit stultorum denique vita.'

[3] 'Tusc. Disp.,' i. 48.

age the *esprits forts* are few. It appears to me beyond doubt that the fear of future torments played a considerable part in the religious notions both of the common people and probably of many of the upper class also in Lucretius's day. Cicero quotes from a drama in which a ghost was brought on the stage describing his passage from the place of the dead:

'Here am I. I come with much ado from Acheron by a deep and difficult way, through caverns piled of enormous rugged rocks hanging overhead, while all around lies solid the thick black darkness of Hell.'

The crowded audience, says Cicero, was profoundly moved by these words.[1] The rapid spread in Rome of the new worships which provided all sorts of purifications and expiations was due—in part, at least—to the fear of future doom. The slave in Plautus says that he has 'often seen pictures of torments in the other world.'[2] These were probably frescoes. In the Etruscan tombs we find pictures of Tartarus with horrible demons threatening the dead with tortures.[3] It may be that Lucretius in his childhood was deeply impressed by legends or pictures of this kind. Repeatedly he refers

[1] 'Adsum atque advenio Acherunte vix via alta atque ardua,
Per speluncas saxis structas asperis pendentibus
Maximis, ubi rigida constat crassa caligo inferum.'
'Tusc. Disp.,' i. 37.

[2] 'Vidi ego multa sæpe picta quæ Acherunti fierent
Cruciamenta.'
'Captivi,' v., iv. 1.

[3] Boissier, 'Horace et Virgile,' p. 95. In the wonderful myth of Er, Plato describes how demons, 'fierce men with bodies of fire,' seized on the wicked and dragged them away to torture ('Republic,' p. 616). Again, in the myth in the Gorgias, he tells how 'those of the wicked who are incurable endure for ever the greatest, the most painful, and the most fearful sufferings on account of their sins.' Probably Plato was drawing in part from the popular beliefs. Such legends are bound to have become coarsened, and their terrorism grosser and more repulsive, when assimilated by the Roman popular imagination.

with strange vividness to the fancied fears of children in the dark. He would appear to have inherited the nervous temperament which inclines the young to be even morbidly impressed by tales of terror. It was the interest of priest and soothsayer to keep alive all such lore.

It is certain that there was a general decay in religious belief in the upper classes of society in Rome. But if religion, in any genuine form, hardly existed in the class with which Lucretius probably was most conversant, at all events the agency of the Gods in the world was most distinctly and constantly acknowledged. The whole fabric of Roman society and of the State was penetrated by a belief in what is called Divination—that is to say, that the result of every undertaking could be forecast, ere it was entered on, by inspecting the entrails of a victim, or by other kinds of augury—moreover, that every event of importance, either to the individual or to the nation, was announced by prodigies of various kinds, and that to a certain extent the performance of proper sacrifices could avert any calamity thus foretold. In Lucretius's generation the 'philosophers' and thinking men generally were beginning to regard the taking of auspices as merely a solemn form. Yet the belief was still deeply rooted in society. In any generation, we must remember, the 'advanced thinkers' are but as units compared with the mass. It was not merely by the ignorant that such a belief was held, not by fishermen or shepherds only, but often by those in highest place as well—by the general as well as by the soldier in the ranks. The practice was officially recognized by the State. Any prodigy, as soon as it was announced, was examined into by the Senate and officially reported on. Moreover, a college of augurs existed, whose business it was, on every important occasion, to ascertain the will of the Gods from various signs. 'Who does not know that this city was founded by auspices? that by auspices all things are conducted, during war and peace, at home

and abroad ?'[1] Auspices were taken at the election of a king, consul, or prætor, as well as of some other magistrates, and unless these could be reported favourable, the election was void. Without auspices no public assembly could be held. A general could not cross the frontier or engage an enemy unless the birds gave sanction. Crassus's defeat by the Parthians was explained by his having fought against the auspices.[2] Pompey was compelled to fight at Philippi because the auspices were favourable. Frequently, too, private affairs—marriage, for instance—were not entered into without thus trying to elicit some sign of Divine approval. Besides the flight of birds and the examination of victims there were, as Pliny tells us, eleven different kinds of lightning, each with a different signification. Such notions regarding natural phenomena, we need hardly say, rendered any scientific view of Nature utterly impossible. If the harvest failed, it was not from improper farming so much as because some one of the Divinities concerned had not been properly propitiated. When hail destroyed the olive-orchards of the Athenians it was because some God wished to gratify their enemies, the

[1] 'Auspiciis hanc urbem conditam esse, auspiciis bello ac pace, domi militiæque omnia geri, quis est qui ignoret ?' (from the speech of Appius Claudius, Livy, vi. 41. Compare Cicero, in Vat. 6: 'Auspicia, quibus hæc urbs condita est, quibus omnis respublica atque imperium continetur.' Cicero speaks here as consul. Yet in his 'De Divinatione' he expresses plainly the conviction that there is, and can be, no science by which the future can be foretold. Gaston Boissier asks, 'Is Cicero, then, hypocritical or dishonest in avowing such respect for the auspices ?' According to the standard of his times, he answers, Cicero is not insincere, for not a few men of education in Rome held it to be the right, and indeed the duty of a Roman in one place to speak as a man, and in another place, as a citizen and magistrate, to speak the very opposite. The *religio civilis* was satisfied by the accurate performance of religious rites according to the form prescribed, and personal conviction was held to have little to do with the matter ('La Réligion Romaine,' p. 71).

[2] Plutarch, 'Crassus,' c. 23.

Spartans. 'According to ancient religion,' says Martha, 'there is no law; everything in Nature is arbitrary and disconnected; phenomena depend on Divine caprice; the thunderbolt, eclipses, movements of the heavenly bodies, the simplest things, the flight of a bird, the running stream — *adeo minimis etiam rebus prava religio inserit deos.* There is no physical science; there is only one art of value, that of augurs and diviners, since at any instant all may be confused by the bad humour, the benevolence, or even the forgetfulness, of the divinity concerned. . . . One may say that in the eyes of pagan credulity not only do no physical laws exist, but there are no political and moral laws. When Rome and Carthage are at war, and their fleets are going to encounter, the people in suspense ask not on what side is right and justice, on what side the generals are the best and the soldiers the most valiant—in a word, on what side virtue is—but whether the sacred chickens will consent to eat.'[1] To what awful disaster such a system may lead, there is in the whole of history no more tragic example than the fate of the Athenian expedition against Syracuse.[2] What the moral consequences of such a system must have been we can easily imagine: on one side, the lying in the name of God and premeditated trickery practised by a priestly class, living by the basest fraud; and, on the other side, the childish fears and the utter undermining of Conscience caused by a system according to which the Divine approval was secured, not by the sole qualification of righteousness, but by minute attendance to forms of propitiation.

[1] M. Martha, 'Le Poème de Lucrèce,' pp. 73, 75.

[2] After squandering the finest armament which Athens, though now in the sixteenth year of an exhausting war, has ever sent out, Nikias is relieved by a second splendid force despatched from Athens, whose resources are now strained to the utmost. Its brave commander at last persuades him to retire while retreat is still open. All is ready, and in a few hours the Athenian army would have been on the sea, when suddenly an eclipse of the moon occurs. Nikias, ever superstitious, consults the diviners, and they decree that the Divine disapproval of their departure,

And what was the character of these Gods so busy in the world? Probably certain of the Deities in Virgil's 'Æneid' are not unlike the Gods of the popular belief. How, then, does Virgil represent them? False, treacherous, revengeful; they never forget or forgive, but watch with feline vigilance for an opportunity to punish those who have all innocently offended them. To the average Roman, not learned or speculative, the world was full of invisible powers, multiplex, jealous, ever-watching. The more zealously that a man paid attention to one God, the more might he offend another, since each different circumstance of life had its own guarding Deity. It was difficult to ascertain the will of each; it was easy to offend without knowing it. Thus Lucretius paints the anxiety of the devotee to leave no altar unhonoured—

'*Omnis* accedere ad aras.'

Again, if anyone were careless and paid no heed to the Divine intimation, however trifling, what terrible unknown consequences might follow! Even a dream, however ludicrous, may possibly be a warning of some coming evil.

Lucretius attributes all rites of worship to the fear of the Gods.[1] Men, he says, do not know the causes of

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which this omen reveals, cannot be averted unless the fleet and army remain where they are until a lunar month has passed. This 'sentence of death' is actually obeyed. Every day lessens the fitness of the Athenians, and adds reinforcements to the enemy. The Athenians spend the interval in sacrifices and ceremonies of expiation. Meanwhile, the mouth of the harbour is being closed. When the struggle begins again, the Athenians cannot break through, and the whole great armament is destroyed. Yet the generals and soldiers who submit to such dictation belong to so enlightened a city as Athens!

[1] 'Quippe ita formido mortalis continet omnis,
Quod multa in terris fieri cœloque tuentur
Quorum operum causas nulla ratione videre
Possunt ac fieri divino numine rentur.'
i. 151-154.

storm, lightning, earthquake, the movements of the sun and moon, nor yet of calamities such as pestilence, and so they attribute these to the Gods, whom they therefore seek to propitiate. It is this dread of unseen powers which, he says, 'even in our own day continues to raise fresh shrines to the Gods all over the world.' Lucretius thus derives religion (the Latin word *religio*, be it remembered, includes both 'religion' and 'superstition') from Fear. But let us stop and ask, From what kind of Fear is superstition born? It has its origin in mere material dread, mere bodily fear of unknown evil coming from unseen powers which are the more dreaded because they are unseen. But very early in the history of all the higher races of men the fear of the Gods as almighty has become bound up with a sense of their righteous will, and has become correlated with the sense of right within. 'Spiritual fear—which is one of the noblest of all affections, as bodily fear is one of the basest—is, if properly defined, nothing less or more than the fear of doing wrong.'[1] (It is with the same noble fear that all

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'Cetera quæ fieri in terris cœloque tuentur
Mortales, pavidis cum pendent mentibu' sæpe,
Et faciunt animos humilis formidine divom
Depressosque premunt ad terram propterea quod
Ignorantia causarum conferre deorum
Cogit ad imperium res et concedere regnum.'

vi. 50-55.

'Nunc quæ causa deum per magnas numina gentis
Pervulgarit et ararum compleverit urbes
Suscipiendaque curarit sollemnia sacra
Quæ nunc in magnis florent sacra rebu' locisque,
Unde etiam nunc est mortalibus insitus horror
Qui delubra deum nova toto suscitat orbi
Terrarum et festis cogit celebrare diebus,
Non ita difficilest rationem reddere verbis.'

v. 1161-1168.

(The antecedent of 'unde' in the last passage is 'causa,' not 'sollemnia sacra.') See especially the whole paragraph, v. 1161-1240.

[1] Charles Kingsley.

true and deep friendship is filled—the dread of proving unworthy.) It is from this nobler fear that religion in the true sense of the word is born.[1] Yet we must admit that the springs of religious observance, *as Lucretius knew it*, were little else than Fear. No wonder that he says that 'human life lay crushed under the heavy burden of superstition,' that men, like children in the dark, dread things which do not exist at all, and that he rejoices in the thought that 'Nature has been rid of her haughty masters.' Doubtless there were many at Rome who professed utter disbelief in any Divine Being, but these were even more superstitious than the rest. Such men had complete faith in all kinds of portents and in astrology.[2] According to the science of Divination, every occurrence in Nature bore some reference to man—it came not from a natural cause, but from some immediate supernatural impulse, which, again, resulted from the Divine approval or disapproval of some preceding human action. What a confusion was this! How could man ever walk in safety and peace of mind amid a world so

[1] Thus Froude says regarding the Scotsmen who followed Knox: 'The fear of God in them left no room for the fear of any other thing.' With regard to one great and representative religious book, the 'Pilgrim's Progress,' the question has often been asked, 'Does not Bunyan make Fear, the mere selfish desire to escape from the city which is to be destroyed, the motive which impels Christian on his great journey?' Too much may be made of this. Bunyan would no doubt have said that for each man the saving of his own soul is an urgent business, which he must perform for and by himself, before he is able and competent to help others. This apparent—much more apparent than real—selfishness of motive is a blemish on a great book, and is to be accounted for partly by the limitations of Calvinism, partly by those of the Puritanism of Bunyan's own age, and partly also by Bunyan's own very marked and exceptional experience.

[2] I can here only refer to the detestable Oriental worships which about this time began to be introduced at Rome, to which Lucretius himself bears witness in the passage last quoted; and, as with spiritualism in the present day, to the increase of magic and necromancy among those who had cast off religion. Most true is the word of Novalis: 'Where Gods are not, spectres rule.'

ordered? Surely the Romans owed a debt to Lucretius for establishing the fact of natural law, and thus breaking down the basis on which such a system was built. And some did not refuse to own this gratitude to the poet, if we may judge from the exclamation of Virgil, who does not add Lucretius's name—probably only because he dared not—

'Felix qui potuit rerum cognoscere causas.'

('Blessed is the man who was able to learn the causes of things!')

We are thus compelled to conclude that in Lucretius's day the popular and prevailing notion of Divine action was an utterly debasing as well as a false one. We need hardly say that a religion like this, however rigidly it may have insisted on formalities of worship, was utterly without true reverence. 'The impious man,' said Epicurus, 'is not he who denies the existence of Gods like those commonly worshipped; on the contrary, the impious man is he who asserts the Gods to be such as the vulgar conceive them.'[1] This famous sentence we see to be no mere controversial figure of speech, but literally true. Such a conception of the Gods had to be broken down and utterly destroyed before it was possible to have any worthy notion of a Divine Power. It is not wonderful that Lucretius becomes boastful in relating the victory won by his master and himself over religion, that he waxes overconfident in the strength of his own arm. He feels that he has escaped from superstition as from some gloomy, low-vaulted prison-house. He has cut his way through the phalanx of his priestly gaolers, and now is in the open air. Who shall say that there he is not nearer God than in the terror-haunted prison-chambers of Roman 'religion' so-called? His poem is the voice of one calling to others still fast bound to break forth and

[1] ἀσεβὴς γὰρ οὐχ' ὁ τοὺς τῶν πολλῶν θεοὺς ἀναιρῶν, ἀλλ' ὁ τὰς τῶν πολλῶν δόξας θεοῖς προσάπτων.—Diog. L., x. 123.

come into the light. Lucretius might use the very words of Goethe :

> ' Away, away from the darkened rooms,
> Where they grudge you the light of day,
> Where men low-bowing in craven fear
> To their mis-shapen idols pray.
> Of superstitious worshippers
> Enough in the years of old ! To-day,
> Have done with portent, myth, and ghost.
> Leave them all to your teachers grey.'[1]

Lucretius is indeed overconfident in the power which has delivered him—namely, the science of Epicurus. His combat with superstition has been too recent and too fierce for him to recover calmness. He is still panting from the struggle with ' Religion, who showed her face from heaven, frowning upon mortals from on high with awful aspect.' By the side of this dread form, grim and cruel, he might have drawn another picture which might embody the very spirit of his poem—the fearless figure of Science, sword in hand, exulting in her triumph, and with a light not altogether born of Heaven upon her face.

And yet, is Lucretius ever so positive as one or two modern writers—Professor Clifford, for instance ? Probably there is nothing in Lucretius even approaching the concentrated bitterness with which Clifford regards every kind and degree of religious belief. ' If we once admit that physical causes are not continuous, but that there is some break, then we leave the way open for the doctrine of a destiny or a Providence outside of us, overruling human efforts, and guiding history to a foregone conclusion. . . . I do think that, if it is right to call any doctrine immoral, it is right so to call this doctrine, when we remember how often it has paralysed the efforts of those who were climbing honestly up the hill-side towards the light and the right, and how often it has nerved the sacrilegious arm of the fanatic or the adventurer who

[1] ' Gesetz der Trübe,' from Goethe's ' Gott und Welt.'

was conspiring against society.'[1] Did the Roman poet ever write anything so recklessly partial in statement? This modern Lucretius has, indeed, compassion for those against whose belief he is compelled to utter the awful verdict of science, yet we cannot help hearing a finer note of pity, more tender, more human :

> 'O miseras hominum mentes, O pectora caeca !
> Qualibus in tenebris vitæ, quantisque periclis
> Degitur hoc ævi quodcumquest ! . . .'

There is, indeed, in Lucretius a Divine compassion for the race of men wandering in the dark, and seeking the way of life all in vain.

> 'Errare atque viam palantes quærere vitæ.'

He tarries beside the sick world, and would gladly heal its wounds, but he sees that it is sick at heart as well. 'The ancient world,' some one has said, 'was weary of itself.' More modest than his modern disciple, Lucretius knows even too well that this sickness and self-weariness lie too deep for him to reach.[2]

It is well to remember that the world owes to Lucretius

[1] 'Lectures and Essays,' vol. ii., pp. 59, 60.

[2] 'Only for another half-century,' Clifford in one passage imagines his hearers to pray—'"only for another half-century let us keep our hells and heavens and gods." It is a piteous plea.' Piteous indeed, but the laws of Nature are not more inexorable than Professor Clifford. No! he says; you cannot keep any longer 'these sickly dreams of hysterical women and half-starved men.' He concludes with a solemn warning: 'Take heed lest you have given soil and shelter to the seed of that awful plague which has destroyed two civilizations, and but barely failed to slay such promise of good as is now struggling to live amongst men' (vol. i., p. 253). The 'plague' is Christianity (see vol. ii., p. 251). At sight of any phenomenon we inquire for its cause, 'Ex nihilo nihil.' Where the philosophical student finds a Lucretius, he will look for an Iphigenia near by. What errors have inspired the words of this modern Lucretius, who is so much more bitter than the ancient one? Mr. Pollock mentions in his preface (p. 31) a fact as to Clifford's religious opinions in his student days, which may, to a certain extent, explain his attitude as a reaction from another opposite extreme.

the first firm and clear exposition of the doctrine of Law and steadfast universal order in Nature. This principle is, we need hardly repeat, a direct inference from his atomic philosophy ; if all the productions of Nature obey fixed laws, the ultimate elements of the matter from which they are composed must be definite and unchangeable.

> ' Materies quia rebus reddita certast
> Gignundis e qua constat quid possit oriri.'[1]

The whole scientific teaching of his poem is a sermon in expansion of the text—

> ' Et quid quæque queant per fœdera naturai,
> Quid porro nequeant, sancitum quandoquidem extat.'[2]

' It is absolutely decreed, according to the conditions of Nature, what each thing can do, and what it cannot do.' ' Nature is conquered by obeying her.' True indeed is the old maxim ; but how can we obey her unless we first learn her laws ? and how can these be known unless they are permanent and steadfast ? The very knowledge that there is a uniform order in Nature gives man a feeling that Nature is less formidable, that he has gained a certain power over her and is less at her mercy, and that as he acquires more knowledge of her ways, he will continually secure for himself greater safety and well-being. Without unswerving laws of Nature, how could the world be a training-place for man at all ? without them what could we learn ? Indeed, we should be ever unlearning. Lucretius's poem taught this great lesson to the European races, and on this account his name ought always to be spoken with gratitude.[3] It is his consciousness of the greatness of this truth which gives dignity to the tone of his poem, even when it presents to us old and outworn explanations of the phenomena of Nature, and where

[1] i. 203, 204. [2] i. 586, 587.

[3] Mr. A. Benn, in his able work on Greek philosophy, has attempted to deprive Lucretius of this honour (see Appendix).

otherwise its subject-matter is wearisome enough. For the ignorant multitude life, he tells us, is a struggle in the dark, but 'the clear sight of Nature and her law' frees man from all childish terrors where no cause of fear is, and teaches him to find his safety in obedience to the world's great Order—

> 'Hunc igitur terrorem animi tenebrasque necessest
> Nec radii solis neque lucida tela diet
> Discutiant sed *naturæ species ratioque.*'

Though Lucretius asserts the realm of Law and preaches that the welfare of man lies in obeying it, still, he has no weak confidence in Nature. Indeed, he shrewdly suspects that Nature, on the whole, is not friendly to man. Storm, earthquake, and pestilence show that she does not care, and will lift no finger, turn no step aside from her steady course, to save from destruction her proudest offspring, who is 'the roof and crown of things.' The relation between Nature and man is not friendship, but may rather be called an armed warfare, or at least an attitude in which man stands ever on guard. Epicurus, he says, 'showed what evils existed everywhere in the affairs of men . . . because Nature had so ordained, and from what gates you must sally out to encounter each.' Thus man is no longer helpless. Epicurus has delivered him by teaching him not only Nature's laws to be obeyed, but also the rules of scientific warfare and the proper defence against each attack of her besieging forces. Nature, he says again, seems to trample on the pride of man as if in scorn of human weakness. 'When the utmost fury of the violent wind sweeps along the sea the admiral of the fleet, with his mighty legions and elephants, does he not approach the Gods with vows to seek their mercy, and, terror-stricken, ask in prayer for the winds to be stilled and for favouring gales?—in vain—since none the less many a time is he seized by the furious hurricane and borne on to the shoals of death; *so utterly does some hidden power trample on the greatness of man,* and

seems to tread underfoot the renowned fasces and cruel axes, and to make sport for itself of them.'[1]

Some write as if the mere recognition of Law in Nature, along with the determination to obey it, must of itself bring joy and peace to the mind of man, even though he utterly disbelieve in any Divine Mind whose will that Law expresses. On this principle, Lucretius's clear perception of a regular Order everywhere pervading the world must have brought him peace and gladness. But is it so? Too true it is that the regularity of natural law is not always admirable. Nature, we see, will take the utmost—nay, did we judge of her as we should of a human antagonist, the most cowardly advantage of our weakness or ignorance. Nature 'has no pity; for some awful but most good reason she is not allowed to have any pity.'[2] Those who blindly admire the unswerving-ness of Nature without realizing that, even when cruellest, she must work to some far-off end—*to those whose creed allows them to see no further*, this regularity must in one important sense appear base and not noble. If a great machine, swinging its polished rods in accurate time, strike the life out of a child who ventures to go near it, so far it is a stupid machine. It has come into collision with a far higher organism than itself and destroyed it, blindly and to effect no higher end, but

[1] Munro supposes that Lucretius may here be thinking of the consul M. Claudius Marcellus, lost at sea just before the third Punic war.

> 'Summa etiam cum vis violenti per mare venti
> Induperatorem classis super æquora verrit
> Cum validis pariter legionibus atque elephantis,
> Nec divom pacem votis adit ac prece quæsit
> Ventorum pavidus paces animasque secundas,
> Nequiquam, quoniam violento turbine sæpe
> Correptus nilo fertur minus ad vada leti?
> Usque adeo res humanas vis abdita quædam
> Opterit et pulchros fascis sævasque secures
> Proculcare ac ludibrio sibi habere videtur.'
>
> v. 1226-1235.

[2] Charles Kingsley.

simply because it cannot help doing it. In so far its regularity is stupid and insufficient. No man who has a heart for human suffering can logically admire the regularity of natural law in all its working, unless he admits that (according to the simple and beautiful parable of Charles Kingsley) 'Madam How'—that is, Nature and her Law—is in all her ways the servant of 'Lady Why,' whose ways and motives, however, we cannot presume to explain, nor yet to invent 'final causes,' for these are only our own poor notions of what Divine Wisdom ought to do. But Lucretius will allow no such guidance. He has explained Nature as a great machine working with a perfect accuracy which he admires, but he is too honest to deceive himself about a world where he sees suffering on every side, and sees men punished by penalties beyond measure for the sins of their fathers. One does not worship a machine because it is vastly strong and works regularly. No; there is something far finer in its essence in the brave little spark within the heart of the man who plunges into the whirling waters to save life from a wreck, than there is in all the appalling vastness of the storm, when sea and tempest, working with a mechanical regularity even in their utmost rage, hurl thousands of tons of water crashing on the fated ship. Lucretius is keenly conscious of this. He has far deeper admiration for the heroic in man, for the fearless spirit that will dare death, or calmly face supernatural terrors for the sake of his fellows, than he has even for the great *Natura rerum*. 'He was the first who ventured to lift up his mortal eyes to the face of Religion, and the first to withstand her to her face.' 'A God he was, a God, most noble Memmius, who first found out that plan of life which is now called Wisdom.'[1] The man who could feel such emotion for another as he has for Epicurus could never worship a machine, however perfect.

Experience enough Lucretius may have had (from

[1] Epicurus appropriated the name *Sapientia* for the teaching of Epicurus. Before Epicurus no Wisdom was.

disease, as some think) that Nature is pitiless. Certainly his unfinished poem (cut short when just in sight of the goal,[1] but without reaching it) points to an activity suddenly broken off—by what we cannot tell, not improbably in consequence of some severe nervous disease, to which his hints of frightful visions haunting his waking hours as well as his dreams seem to point. Thus it is possible—whatever it be that may have gone wrong in his life—that Lucretius may himself have been caught between the grinding wheels of his great machine—the *machina mundi*, which, regular to a fault, could not, and did not, spare him. In any case, he shows himself to us as no blind worshipper of Nature :

> 'Nequaquam nobis divinitus esse creatam
> Naturam rerum : tanta stat prædita culpa.'[2]

('The Gods can never have created the nature of things : so great defects it stands encumbered with.') So to our own Shelley the sounds of Nature are at times the voice of the world lamenting over its pain :

> 'Rough wind that moanest loud,
> Grief too sad for song,
> Wild wind when sullen cloud
> Knells all the night long ;
> Sad storm, whose tears are vain,
> Bare woods, whose branches strain,
> Deep caves and dreary main
> Wail for the world's wrong.'

A keen-sighted human spirit cannot have its eyes closed by darkened glasses of any kind, not even by scientific and brand-new Epicurean spectacles, which assure him that all things are atomic, but that all is well and the best that can be. A soul like Lucretius's cannot be hood-

[1] 'Tu mihi supremæ præscripta ad candida calcis
Currenti spatium prænonstra, callida musa.'
vi. 92, 93.

[2] v. 198, 199 ; repeated at ii. 180, 181.

winked thus, even though it may sternly compel itself to assent on logical conviction. Beyond question Lucretius's creed did much to darken his life. There is a want of hopefulness in his poem. Nor is this wonderful. Is it not true that our pleasures are in great part made up of anticipated repetition? The pleasure of to-day is sweet, and we trust that we shall enjoy the same to-morrow and to-morrow in extended series. Nay, we even feel that repeated enjoyment shall be keener—

> 'To-morrow shall be like
> To-day, but much more sweet.'[1]

Is not this anticipation, perhaps, the finest part of pleasure? So, if to all life there be no great To-morrow, is not a shadow cast over all that we most keenly enjoy, whether work or recreation, in our daily life? These things are once, but shall not return. There is nothing to anticipate regarding them. Is it possible that a man's mental horizon all around should not be narrowed and darkened by this? It is the human heart by which we live, and Lucretius has denied two of its deepest instincts. So all that is most cheering and glad in human life and human hopes is, for him, maimed and curtailed. He seems to wonder why other men find life so sweet. Frequently, in reading his poem, we feel that we are in presence of a nature somehow isolated so that it cannot rightly share in common human cares and human pleasures. In the poet's own past life there may have been special reasons for this, besides the very plain ones just indicated.

So far as a determined assent to logical conviction is implied, few men have ever more completely accepted the gospel of Atoms and Eternal Death than did Lucretius. Whatever moments of truer consciousness he may have

[1] From Christina Rossetti's 'At Home,' a little poem, in its own way, worthy of Dante ('Goblin-Market and Other Poems,' 1865).

had, he will own no higher power ordering the world than the blind eternal motion of the atoms. He has sought and found nothing but 'dead matter' anywhere. And, as it has been said of some recent philosophical theisms, that they place God 'somewhere in the nebula of Orion,' entirely out of connection with earth, so Lucretius's shadow-Deities are put far, far away from him in the intermundia—

'The shadowy interspace of world and world'—

and thus the earth and heaven were left empty. Not so was it with the old mythology in its better day. His master Epicurus had driven away the beautiful and glorious Beings, the Heroes and Gods, who, as the simpler and purer forefathers of his race believed, would stoop from heaven and walk with man upon earth, caring for his cares, watching his efforts, ever guiding and helping him. He had banished the many conscious living Presences from sky and field and wood and stream. He had found the world living, if not with One Great Life, yet with many lower lives, and he left it dead, 'utterly dead,' and cold. This was his substitute for polytheism, and the world, as a whole, could never have accepted that substitute, for it was not more but less true. And do we not find that the poem of his disciple Lucretius strikes us forcibly with a sense of *something wanting?*—of a missing element alike in the world of man and in the outer world of Nature? Yes, even in those vivid descriptions of Nature, which he knows so well to paint in a line or two of his rushing verse, pictures so bright and clear and living that the fresh air seems to blow out of them as on a breezy summer morning—even here we feel that something is absent—something which we know ought to be there—and at first we are puzzled, and ask ourselves what it is. It is just so in a dream, when we go out and walk the familiar street and see the well-known forms and persons, the trees, the sky, the house in which we live; but always we are filled with

pain, for however bright the sunlight, and however green the leaves may be, there is something wanting in the landscape, everywhere, in all we see. It is some friend—some one that we dearly love, and without whom we can never be satisfied—whom in our dream we go seeking up and down, yet cannot find. And what at times strikes us so strongly in Lucretius's poem is something more than his mere air of standing aloof from common human affairs. Is it not the lack of Life, the absence of any Living Presence in the world, that we feel? And, alas! this was no dream to Lucretius, but a waking nightmare; and to those who can hear, the sadness of it cries aloud in his poem.

Lucretius is a most ardent disciple of his master. None more zealous or more determinedly true to his great teacher could well be. The system of Epicurus held him with a mighty grasp, and he schooled himself to crush down all instincts that rebelled against it; but sometimes human nature was strong within him, and Epicureanism was weak. When he stood in presence of the beautiful world, Lucretius felt that there was something there which was wanting in his own darling 'De Rerum Natura.' From many a passage in his poem we cannot help believing that in presence of Nature and her life Lucretius was stirred by feelings directly at variance with the dogmas of his sect. Then he seems to have felt happier; then he forgot himself and his Epicurean creed, forgot the bitter combat with religion, forgot that human life, for all save a few, 'is a struggle in the dark,'[1] forgot altogether to anticipate what he had compelled himself to think of as merely a blessing and end of troubles—

> 'The first dark day of nothingness,
> The last of danger and distress.'

At such a time the dogmas of Epicurus slide away, vanish, and are gone. Again the world is glad to him as in his

[1] 'Omnis cum in tenebris præsertim vita laboret.' ii. 54.

childhood. In such a mood we imagine him in some spot which he loved to haunt, perhaps in a meadow on the side of the sunny Apennine, on a day in spring. The sun is beating down on the green grass, and there is a scent of trees budding, and in the pasture lambs and calves are sporting or running to their dams, 'intoxicated in their young hearts by the pure new milk'[1]—joyful creatures, without fear or suffering, all happy, and each living a life of its own[2] in the lap of Mother Earth. In every blossoming hedge young birds have their nests, in every pond and rivulet living things are swimming to and fro, and to them all existence is happiness. There is joy all over the world. And in the midst lies Lucretius, with the branches swaying over his head—

> 'Prostratus. . . . In gramine molli
> Propter aquæ rivum sub ramis arboris altæ.'

To him also Nature is kind. She has prepared form, and colour, and scent, and sound, and mingled them to satisfy his every sense. And he, too, is glad for the season—why, he can hardly tell—but he feels that behind all this beauty and manifold animal gladness there lies, like some boundless sea, a deeper life, vast and happy. It is thus that passages of his poem speak to us, telling of moods in which his Epicurean creed could barely, as if for duty's sake, throw a veil over the throbbing life of the world which bursts through the covering and will not be hid. Over and over again he has told us that the world is chance-born, but at the same time he says to us through grand and lovely pictures of Nature: 'See! is not the world more mysterious, and does not its beauty compel our awe more than anything of mere atomic parentage

[1] 'Hinc nova proles
Artubus infirmis teneras lasciva per herbas
Ludit, lacte mero mentes perculsa novellas.'
i. 259-261.

[2] See ii. 333-380.

could do?' No truer word ever was spoken regarding Lucretius than Mrs. Browning's—

'He denied
Divinely the divine.'

Even while he most stoutly denies that there is any Divine element in the world, this poet of Materialism rouses us to feel that there is something in and behind its grandeur and its ever-changing beauty which rebukes our sensual impulses and compels our worship. In short, Lucretius, like the writers of the Psalms, makes us feel that there is a spiritual element in Nature. To attribute such thoughts to Lucretius may be termed mere fancy—'Simply without foundation, if not contrary to fact'—those who know the poet merely as an ardent Epicurean may assure us. But Lucretius was not merely an Epicurean: he was also most genuinely a poet—that is to say, he possessed a heart more human than that of other men, and therefore one which craved more deeply to assert its relation to God as well as to man, *and specially one to which the beauty of the world, of necessity, carried even stronger and more certain inspirations than it does to other men.* Rigidly as its deepest instincts were chained down, such a nature must have broken into rebellion at times.

Lucretius has, indeed, most minutely explained to us the Birth of the World from chance atomic combination as a matter with no mystery about it. He has shown how the wheels of the machine were first set in motion, how it keeps going on, and how steadily it works. So far he follows his master. Yet, in spite of this, in his inmost thought and feeling it is clear that the world is no dead mechanism to him. He does not regard it, as the ordinary man of science would now have us do, as a mere eight-day clock, a marvellous timekeeper. Nor yet is the world to Lucretius, as the roué deems it, a battered old machine, grim and grey, coming wearily up to time for yet another spring. No! Lucretius

cannot help thinking of it in the way that all great poets have done, as something divinely beautiful and grand, which, even though his own life may be sad, still remains to him fresh and bright as it is to the child.

It is remarkable that a system of atomic Materialism should allow the existence of Free-will at all. Epicurus and Lucretius, however, most firmly believed that man has free choice and is responsible for his actions. It is this alone which dignifies Lucretius's system, based as it is on Materialism, and which enables us to respect him as a moral teacher. If there is no Free-will, there can be no such thing as sin. Each of us, sensual and cowardly, or pure and heroic, but plays the part to which he was fated by his birth. 'It cannot be denied,' says Martineau, 'that the whole system of moral conceptions, feelings, and language, rests upon the belief in Free-will, and deals with man as (within its particular range) the real cause of what he is and does. But for this, who could suffer compunction any more for a lie than for a squint, or shame for delirium tremens more than for a typhoid fever, or feel more indignant disgust at the crimes of a Cæsar Borgia than at the rapacity of a wolf? Remorse for sin would be impossible but for the consciousness that it lies at our door.'[1] Lucretius's firm belief in man's freedom, in the 'fatis avolsa potestas' ('the power wrested from the fates'), gave him a strong conviction of human responsibility for rectitude or guilt. Thus, he tells us, it is in our power to eradicate our own evil temperaments—not, indeed, completely, so that one man shall not still be more prone than another to anger or fear, but training and reason will do almost everything.[2] 'So very small,'

[1] 'Ethics and Religion,' by James Martineau, 1881, p. 12.

[2] Lucretius attributes these differences of disposition to differences in the atomic structure of the mind—yet even so, he deems man the master, and not the slave, of his own inherited temperament:

> 'Quamvis doctrina politos
> Constituat pariter quosdam, tamen illa relinquit
> Naturæ cuiusque animi vestigia prima. . . .

he concludes, ' are the traces left of men's original natures, which reason is unable to expel from us, that nothing hinders us from living a life worthy of the Gods.' Consistent with this belief is Lucretius's keen conviction of the misery that guilt must bring with it. Repeatedly he dwells on the power of conscience to torture the transgressor, as in his picture of the youth captivated by a courtesan ; he feels that he is squandering his years and his wealth ; his duties are neglected ; his good fame is lost ; his inheritance is being lavished on a profusion of costly attire ; great emeralds flash their green light on his mistress's robes, and the costly purple dress is worn every day. Banquets are prepared with rich viands, garlands, perfumes, and every delight for eye and appetite, but—

' All in vain, since out of the very well-spring of delight there rises up something of bitterness to sting him amid the very flowers, either when his mind, conscience-stricken, is gnawed with remorse to think that he is passing his days in sloth and wasting his life in resorts of ill-fame ; or because she has let slip some word, and left its purport in doubt, so that it clings fast to his passion-stricken heart and smoulders on like fire ; or else because he fancies that she casts her eyes around too much or gazes on another, and because he sees lingering on her face the traces of a smile.'[1]

> ' Nequiquam, quoniam medio de fonte leporum
> Surgit amari aliquid quod in ipsis floribus angat
> Aut cum conscious ipse animus se forte remordet.'

> Inque aliis rebus multis differre necessest
> Naturas hominum varias moresque sequacis ;
> Quorum ego nunc nequeo cæcas exponere causas
> Nec reperire figurarum tot nomina quot sunt
> Principiis, unde hæc oritur variantia rerum.
> Illud in his rebus videor firmare potesse,
> Usque adeo naturarum vestigia linqui
> Parvola quæ nequeat ratio depellere nobis,
> Ut nil impediat dignam dis degere vitam.'
>
> iii. 307-322.

[1] iv. 1121 *ff.*

The severest of all Lucretius's censors, Montée, refuses to see in this reflection an involuntary confession of the infinite gulf between true affection and the 'love' which is bought with gold. 'Spoken by another,' he says, 'this saying might have been sublime; in the place where it occurs it is no homage to virtue. Lucretius has seen thorns rise from the midst of flowers, but they are the thorns of love, and not those of pleasure.'[1]

This judgment is not just, nor is it true. The hidden thorns that pierce and sting are not merely the youth's suspicions of his mistress, but his remorse for the years lost as slave to a base passion, and for the respect he has forfeited, and for the duties he has slighted.

Repeatedly Lucretius points out that the criminal, even though his sin be not found out, cannot live a happy life. 'Violence and wrong catch all who commit them in a net, and for the most part recoil on him from whom they sprung.'[2] We cannot expect a disciple of Epicurus to look on such questions from the standpoint of Sophocles or Plato: *they* speak a different language. On such points his expressed teaching rather takes a negative form—it aims, that is, at saving men from the evil appetites which make their lives misery. Thus, in denying the common notions of hell and its torments, he points out that in

[1] P. Montée, 'Lucrèce considéré comme Moraliste,' Paris, 1860 (a thesis presented to the Faculty of Letters of Douai).

[2] 'Circumretit enim vis atque iniuria quemque
Atque, unde exortast, ad eum plerumque revertit,
Nec facilest placidam ac pacatam degere vitam
Qui violat factis communia fœdera pacis.
Etsi fallit enim divom genus humanumque,
Perpetuo tamen id fore clam diffidere debet;
Quippe ubi se multi per somnia sæpe loquentes
Aut morbo delirantes protraxe ferantur
Et celata mala in medium et peccata dedisse.'
v. 1152-1160.

If we compare with these lines the sayings of Epicurus quoted on p. 349 (47 and 48), we find that Lucretius adopts a different tone from his master's in referring to the consciousness of guilt.

truth hell is not outside a man, but within him. Truly, it consists in the fear and the misery of mind which, by the nature of things, follows, and can never fail to follow, wrong-doing. 'There is in this life a dread of punishment for evil deeds, signal as the deeds are signal, and as an atonement for guilt there is the prison and the frightful hurling down from the rock, scourgings, executioners, the condemned dungeon, the boiling pitch, the red-hot plate, the torches. Yea, and though these be wanting, still the conscience-stricken mind ('mens sibi conscia factis'), *fearing before the time*, applies to itself goads, and frightens itself with whips, and sees not meanwhile what end there can be of ills, nor what limit at last there can be to punishments and fears, lest the same evils be increased after death. *The life of the fool*, in short, *becomes a hell here upon earth.*'[1]

'Hic Acherusia fit stultorum denique vita.'

But is it only fear of punishment which causes the criminal's distress? Does Lucretius entirely pass over the sorrow for his fault and for the wrong done to others? —sorrow which may be more terrible than the fear of all penalties?

His remark that it is possible by degrees so to alter our whole character that nothing shall be left of the original makes us ponder. Does Lucretius realize the tremendous meaning of these words? Were they spoken by Browning, with his profound grasp of heredity, of temptation, of the degree of resistance which is humanly

[1] 'Sed metus in vita pœnarum pro male factis
Est insignibus insignis scelerisque luella,
Carcer et horribilis de saxo iactu' deorsum,
Verbera, carnifices, robur, pix, lammina, tædæ;
Quæ tamen etsi absunt, at mens sibi conscia factis,
Præmetuens adhibet stimulos terretque flagellis
Nec videt interea qui terminus esse malorum
Possit nec quæ sit pœnarum denique finis
Atque eadem metuit magis hæc ne in morte gravescant.
Hic Acherusia fit stultorum denique vita.'
iii. 1014-1023.

possible, they would carry a different weight. As it is, we cannot avoid putting questions to which Lucretius attempts no answer. How is any one of us to make a beginning? How drag forth his feet sinking in the slough of propensity? How cast off the taint of heredity coiling around the will? Those who have fought hardest against temperament and inclination know better than any mere reasoner the reality of Free-will as a fact within them; but these do not proclaim their complete victory with such confidence. Somehow these words have an air of being lightly spoken.

There is more that is spiritual in the denial of hell and its terrors from Lucretius's standpoint than there was in the orthodoxy of his day. Lucretius has the utmost contempt for merely formal religion. At thought of this, a sudden blaze of anger, mixed with pity, flashes out of him. 'There is no holiness in being often seen to turn oneself with veiled head towards a stone, and to approach every altar and to fall prostrate on the ground, and to spread out one's palms before the statues of the Gods, and sprinkle the altars with much blood of beasts, and link vow on to vow—rather is it to be able to look on all things with a mind at peace.'[1] Lucretius sees most clearly that religion consists not in making oneself safe, and in anxiously striving to propitiate the Gods.

[1] 'Nec pietas ullast velatum sæpe videri
Vertier ad lapidem atque omnis accedere ad aras
Nec procumbere humi prostratum et pandere palmas
Ante deum delubra nec aras sanguine multo
Spargere quadrupedum nec votis nectere vota,
Sed mage pacata posse omnia mente tueri.'
v. 1198-1203.

Lucretius here refers to the most solemn forms of Roman worship; '*velatum* refers to the Roman custom of praying velato or operto capite' (with head covered), and *vertier ad lapidem* to another posture in worship, 'the suppliant approached in such a way as to have the statue of the God on his right, and then, after praying, wheeled to the right so as to front it, and then prostrated himself' (Munro).

He finds more of true religion in an open-eyed soul which looks the facts of the world full in the face, without any slavish dread of unseen powers—

'Pacata posse omnia mente tueri.'

The anxiety to appease the Gods by devout ceremonies springs from Fear, and Lucretius seems to have felt strongly that selfish Fear has little in common with true worship. He does not attempt to explain this conviction, but is it not, even from his own standpoint, profoundly true? Especially, however, we cannot fail to note a religious tone in the intense earnestness with which Lucretius often warns men against the slavery to ambition. At such times he seems to single out his hearer, and to speak with a voice not out of centuries past, but as it were standing by our side. He laments that men 'wear themselves out to no end, and sweat with blood as they toil along the narrow road of ambition.' 'Avarice and the blind lust of honours compel hapless men to step across the bounds of right, and, sometimes as accomplices and agents in crimes, to strive night and day with surpassing toil to struggle up to the heights of power.'[1] From the safe and stable high places, 'well fortified by the learning of the wise,' to which Epicurus has raised him, Lucretius looks down with deepest pity 'to see other men wandering all abroad and going astray in their search for the path of life, to see the contest of intellect, the rivalry of birth, the striving night and day with surpassing effort to struggle up to the height of power and be masters of the world. O miserable minds of men! O blinded hearts! In what darkness of life and amid how great dangers is passed this little term of our existence, all that there is of it!'[2] There are many such passages. Why is it that such warnings affect us quite differently from those of Horace to much the same

[1] v. 1131, 1132; iii. 59-63.

[2] ii. 7-16. I quote almost literally from Mr. Munro's vigorous rendering. Note the pathetic quodcumquest.

effect ?[1] Because it is a different nature that speaks to us, because there is far more of a spiritual tone in Lucretius, and not mere selfish prudence. He does not say, 'See the foolish toiling of these ambitious men, who might have done better, risked no battles by land or sea, spent no nights in watching, lived many safe and easy days.' No! At thought of this, Lucretius feels a pity touched with admiration. It is the earnest effort and dauntless striving which he admires—but wasted—which he pities, and cannot pity too much, seeing that men spend their money for that which is not bread. In Lucretius's preaching against ambition we discern a passionate and daring soul which finds it hard to curb itself; in Horace we see a cautious and restricted nature which has not courage to attempt the heights. In no other utterances does Lucretius's personality become so distinct as in these. It may well be that his frequent warnings against ambition are the voice of one who has himself toiled 'along the narrow road'—

'Angustum per iter . . . ambitionis'—

and who has found that such a life can in no case satisfy the hunger of the soul. Few have ever felt more deeply that the cause of man's unhappiness is within himself—that even with all earthly success, and with every luxury at command, he is still disquieted. And for this, Lucretius tells us, the heart of man is to blame. He needs some saviour from without to cleanse it, and to point out to him the *via vitæ*, 'the way of life.' By a striking parable (borrowed from Plato[2]) he shows that we need to change ourselves, and not our circumstances. The heart of man, he says, is like a vessel which is corrupt and befouls all the precious things which are poured into it, or which is 'leaky and full of holes, so that it can never by any means be filled full. . . . Therefore,' he says,

[1] Compare, for example, the first ode of Horace's third book with Lucretius's proœmium to book ii.

[2] 'Gorgias,' p. 493.

Epicurus 'cleansed men's hearts with his truth-speaking precepts, and fixed a limit to lust and fear, and showed what is that chief good which we all are seeking, and pointed out the road along which, *by a little cross-track, straight and direct*, we might struggle towards it':

> 'Atque viam monstravit, *tramite parvo*
> Qua possemus ad id *recto* contendere *cursu*.'[1]

Viam monstravit. Lucretius points out proudly that his master alone has shown the *direct road*, the 'short-cut' to true happiness. Who so practical a teacher as Epicurus? Was Epicurus's 'way of life' like the little wicket-gate of Bunyan—if not hard to find, yet hard to enter? Lucretius does not tell us. One fancies that for Epicurus the rule of life which he himself founded must have been from the first more or less easy, but Lucretius was of too eager and passionate a temper to find it so. So much we know—that Lucretius had been storm-beaten, and, here entering, had found shelter.

I cannot help believing that Epicurus's more devoted disciples, as a rule, were not the young and ardent, before whom life shines one long sunny vista of glad and glorious things, but rather the middle-aged, and of these probably not a few were men of the world who had grown tired of living for pleasure. Why, indeed, should young men be drawn to Epicureanism? The leading doctrines of Epicurus, his ostentatious scoffing at the recognized standards of honour and chivalry, his rigid interdict upon all adventure or ambition—these are hateful to the generous spirit of youth, which is not so in love with 'tranquillity at any cost.' The young man's admiration is all for those who do or dare great things, and he forgets

[1] vi. 27, 28. *Parvo* here means not 'short,' as Munro renders it, but 'narrow'—a little footpath in Spenser's sense, where he is describing how the Red Cross Knight was led by the holy man to the hilltop:

> 'From thence far off he unto him did show
> A little path that was both steep and long,
> Which to a goodly city led his view.'

to remember how brief and how arduous such careers may be. It was rather the elderly who had squandered their inherited portions of hope and enthusiasm, and now saw life but as a series of illusions, who were likely to become whole-hearted converts to such a sect.

The brilliant prologues to Lucretius's books are simply throbbing with the most intense enthusiasm for humanity. In each of them Lucretius warns his readers with pathetic earnestness against ambition,[1] and points to the only way of salvation—that brought by Epicurus. Thrice he concludes with the same beautiful and tender words. It is reason alone which can deliver men from care and fear, 'since the whole of life is a struggle in the dark. Just as children in the dark tremble and dread every object, so we in broad daylight fear sometimes things which are no more objects of terror than those which children shudder at in the darkness, and fancy they must certainly exist. This terror, therefore, and darkness of the mind must be dispersed, not by the rays of the sun and the bright shafts of day, but by the aspect of Nature and her laws.'[2] A small and selfish nature does not bear such pity for others of human kind. Lucretius feels that the appeal of friends and kinsmen for help in distress is a claim as irresistible (to all true hearts) as is Nature's loud demand for self-preservation. Thus, after picturing the horrors of the plague at Athens, he says :

[1] Especially in the magnificent procemium of book ii., ll. 1-61. Probably in all literature there is no other so penetrating description of the nature of ambition. Lucretius here sounds the deepest places of the human heart.

[2] 'Omnis cum in tenebris præsertim vita laboret.
Nam veluti pueri trepidant atque omnia cæcis
In tenebris metuunt, sic nos in luce timemus
Interdum, nilo quæ sunt metuenda magis quam
Quæ pueri in tenebris pavitant finguntque futura.
Hunc igitur terrorem animi tenebrasque necessest
Non radii solis neque lucida tela diei
Discutiant, sed naturæ species ratioque.'
ii. 54-61.

'The sense of honour compelled' those who were well to risk contagion by attending on those stricken. Such could not resist 'the low, gentle tones, blended with piteous plainings, of the sick whose strength was sinking. All the noblest met their death in this way.'[1] *Pudor cogebat.* We cannot doubt that Lucretius speaks for himself here. His master would have approved the rule of conduct, but not the expression of it. Epicurus did not love such words as 'honour,' 'courage,' 'justice,' which carry the idea of moral obligation, and, we are told, he very rarely used them. Rather does such a phrase as this bear the stamp of the Roman gentleman with his old-world notions as to what Rome expected of her soldiers and citizens. Again, Lucretius's admiration for the spiritual bravery of Epicurus, and his supreme scorn for the cowardice of soul which, for fear of evils in this world or in the next, dares not look facts in the face—is this not the sign of a fearless spirit and of loyalty to truth? Further, we have shown how keenly Lucretius makes us feel the grandeur and beauty of the world. Beyond question, it is never in the mirror of a selfish and sensual mind that the world can reflect itself thus nobly. Lucretius vaunts himself so boldly as the poet of Materialism that he has often been thought to be a man without any religious instincts. But do we not find the certain signs of a spiritual nature in the features here indicated—in his utter hatred of cowardice and false-

[1] 'Qui fuerant autem præsto contagibus ibant
Atque labore, pudor quem tum cogebat obire
Blandaque lassorum vox mixta voce querelæ.
Optimus hoc leti genus ergo quisque subibat.'
vi. 1223-1226.

Lucretius has followed very closely Thucydides, who says that many of the stricken were left to die untended; 'those who did visit them perished, and especially those who made any claim to virtue. From a sense of honour these were unsparing of themselves, visiting their friends when even relatives had grown weary of the wailings of [or "for"] the dying' (ii. 51). The pathetic third line is Lucretius's own.

hood, in his deep pity for the suffering of mankind, and in his passionate eagerness to give to other men the salvation which he has found for himself ?

We are now better able to estimate the position of Lucretius and the aim of his poem. He was a man whose soul the vision of Nature had filled with the majesty of natural law, banishing for ever the capricious Divine agents. To him Nature seemed far grander than the old Gods of the Pantheon at their mightiest. Moreover, he could not but feel that the conscience-nature of man, with its abhorrence of wrong and cruelty, represented something infinitely higher than the old impure, selfish, jealous Gods. It is difficult to decide whether Lucretius is to be viewed primarily as the opponent of Paganism or as a physical inquirer, whether his strongest craving was to pursue science or to destroy superstition. Like many others in his age, he saw in the atomic theory a proof that the Gods have not created man, and have no influence in human affairs. He embraced the scientific system of Epicurus, and followed it up with all the strength of his intellect. Beyond question, he had both a strong bent and a natural faculty for such studies. It was a dogma of Epicurus that physics has a right to exist only for the sake of ethics, in order to show the falsehood of superstition, and that for any other end such inquiries are useless. If Lucretius, a man of far more eager and earnest temper, held this opinion at all, it was in a far less absolute form. In the study of Nature for its own sake he found the keenest pleasure. Still, it is true that even the strong intellectual passion which he shows for scientific research pales before the intense white heat of his human sympathies. Perhaps these are nowhere more strongly shown than in the wonderful description of the sacrifice of Iphigenia. Of all the Greek legends dealing with human sacrifice, this was by far the most painful and repulsive. No self-offered victim she, according to the legend, but one dragged to the altar, weeping and all unwilling. She is impelled by no high resolve to drive

the knife into her own breast, to give her life of her own will for the sake of her countrymen. She simply feels that she is young, and that life is sweet. There is no bright, calm halo of self-sacrifice here that might move us to forget the horrible superstition that made cowards of the standers-by, warriors though they were, but fearing, far worse than death, some awful judgment from offended Gods, should they dare to snatch the knife from the hand of the priest and bid the victim go. Who that has once read can ever forget Lucretius's description of the weeping human victim—the young girl decked with the fillet on her soft hair,[1] even as beasts are decked for sacrifice, dropping on the ground in terror when she sees the priests, who stand by and conceal the knife, appealing in vain to her father, and at last carried by force to the altar? The scene is painfully vivid. Probably Lucretius may have seen horrible punishments inflicted at Rome for offences against religion.[2] At any rate,

[1] 'Cui simul infula virgineos circumdata comptus
Ex utraque pari malarum parte profusast.'
i. 87, 88.

For us these lines have no force, but to a Roman reader they must have been most impressive. The victim made ready for the sacrifice, with woollen fillets hanging down at equal length on either side of its head, was a common sight in Lucretius's day. Iphigenia is the human victim, tricked out like a sheep for the altar. How would our own Shelley have done justice to a subject like this!

[2] If Lucretius had not himself seen the punishment by burial alive of a Vestal virgin, at all events he had heard it described by eye-witnesses. About the year 114 B.C., Æmilia, Licinia, and Marcia suffered thus (Dio Cassius, fragm. of Book 34). The offence so punished was unchastity, which might be real, or was presumed of the priestess under whose charge the holy fire had gone out. In such cases, the chief priest, the Pontifex Maximus, after praying silently with outstretched hands, led the victim to the entrance of the cell ('cubiculum subterraneum'—Pliny, 'Ep.,' iv. 11). She then descended by a ladder, the cell was shut by the executioner, and earth piled closely over it—a horrible death! The execution was carried out in public, and, as Plutarch tells us, the populace watched it in awe-stricken silence. The place was 'near the Colline Gate, on the right hand of the road' (Livy, viii. 15). Lucretius must often have passed this hideous spot, justly called 'The Accursed Field'—Campus Sceleratus.

he uses this story of the past because he believes that the religion of his own day is fit to produce evil deeds and crimes like this, and does produce them.[1] If he had drawn but this one picture, its every detail speaking his burning abhorrence of cruelty in religion's name, he had not lived in vain. Indeed, this seems to us the noblest, bravest thing that he was allowed to do. Surely when man seeks to propitiate Deity and win his favour by

[1] 'Quod contra sæpius illa
Religio peperit scelerosa atque impia facta.'
i. 82, 83.

Lucretius is not thinking of distant times only, nor yet of far-off barbarous lands like Britain, Gaul, and Carthage in his own day, where such rites were frequent, and often many victims slain at once, as when the Carthaginians offered in one day two hundred youths of noble birth in sacrifice to Moloch. Human sacrifices were not unknown even at Rome, and in Lucretius's own time. After the terrible disaster at Cannæ, four victims (two Greeks and two Gauls, of either sex) were buried alive in the Forum Boarium, at a spot where such sacrifices were repeatedly performed—'a most un-Roman rite,' as Livy calls it ('minime Romano sacro'—Livy, xxii. 57). Again, two years after the birth of Lucretius, with reference to some human sacrifice which had been carried out publicly, the Roman Senate passed a decree forbidding such rites ('ne homo immolaretur'—Pliny, 'Hist. Nat.,' xxx. 3). They still subsisted, however. *Etiam nostra ætas vidit*, remarks Pliny, who died in A.D. 79 ('Hist. Nat.,' xxviii. 3). Plutarch (A.D. 46-120) refers to them in a tone of horror as still performed during the month of November (ὃις ἔτι καὶ νῦν ἐν τῷ Νοεμβρίῳ μηνὶ δρῶσιν Ἕλλησι καὶ Γαλάταις ἀπορρήτους καὶ ἀθεάτους ἱερουργίας.—Marcellus, iii.). Even in mild and civilized Greece human sacrifices were offered, as, for instance, openly to Zeus, on the summit of Mount Lycæos in Arcadia (referred to in the Platonic Minos, p. 315). Hadrian issued an edict about A.D. 130 which was said to have put a stop to the custom all through the Roman Empire. But Pausanias, who wrote about A.D. 180, tells us that in his own time these sacrifices were still offered at Mount Lycæos, but in secret. 'It was not to my liking,' he adds, 'to inquire curiously into the details of the sacrifice. Let it be as it is, and as it has been from the beginning' (viii. 38). This secrecy was doubtless due to fear of Roman authority. So dark a survival of ancient rites would have been painful for Pausanias to record. His reticence is eloquent.

sacrificing his weaker brothers, that is the incarnation of selfishness. What could Lucretius do but protest against a power like this? The bare picture is enough, but his feeling rises to a climax in the single concluding word—

'Tantùm religio potuit suadere malorum!'

Could there be a God, and leave this appeal unanswered? Not in Lucretius's day did the answer come, not till years after he had died, perhaps, as tradition murmurs, by his own hand and in a moment of despair. Yet an answer did come, and the next generation saw it.

It was not for nothing that there was put into the heart of this man a burning hatred of the wrong done in the name of God, which Paganism authorized, and also of the baseness of superstitious fear. In this picture of Iphigenia's death the horror that filled him at the thought of the crimes and deadly selfishness that superstition had prompted and produced, found mute but overwhelming expression. Short, indeed, but trenchant, like a thrust of the Roman sword, is Lucretius's comment on this shameful deed—

'Tantum religio potuit suadere malorum!'

With this one blow he stabs the cowardly figure of cruel Superstition through and through. The echo of that stroke is ringing through the world still.

The line just quoted may be rendered, 'There is nothing so dangerous as the religious conscience.' What would Lucretius have said of the underground torture-chambers of the Inquisition, of heretics walled up alive, of that truly hellish pageant, the *auto-da-fé*? Rightly, and with profound instinct, has Lucretius chosen the story of Iphigenia to illustrate the evils of superstition. Probably nothing is so distinctive of religion—falsely so called—as its power to harden the human heart and destroy pity, while all the time it is promising to confer superhuman goodness. Those who have watched a beautiful nature, sincerely religious, yet wanting in self-reliance

and intellectual discipline, gradually becoming distorted and even hardening to the appeal of natural feeling under the influence of narrow religious teachers into whose coarse hands it has surrendered itself—these can share Lucretius's horror to the full.

> 'Is it not love to loathe the loveless? Yea!
> 'Tis love like God's to man.'

Lucretius's hatred of the false implies a longing for the true.

Viewed in a wider horizon, and with reference to the progress of the world, we may look at his poem and even say, 'It is well and rightly done' yet not altogether well for Lucretius himself, for he had done violence to the God-consciousness within him. And beyond question the poem must have had a mighty power in destroying the old polytheistic creed, which could never be made new again, and had to pass away. Especially for the young who were thoughtful and earnest, who shared Lucretius's horror of the evils produced by superstition, who were, moreover, convinced by the intellectual force with which he refuted the notion that everything in Nature goes by Divine caprice, and who, like him, could stifle neither of these convictions—for such readers its passionate and impetuous poetry must have driven its arguments home with irresistible force. Not in vain had Lucretius raised against Paganism a voice which could never more be silent.

I cannot help here referring to the estimate of Lucretius expressed by a writer who has done some admirable work in the way of criticism, Mr. Robert Buchanan.[1] 'Lucretius,' he says, 'is a Materialist, pure and simple, solemn and staunch; as bigoted in his creed, and as certain of his gospel, as the veriest divine that ever thumped a cushion'; and so on. Nowhere has Mr. Buchanan hinted that Lucretius took a great step forward for religion as well as for science when he asserted

[1] In his essay on 'Lucretius and Modern Materialism' ('A Look round Literature,' 1887).

that everything in Nature goes by law, and nothing by caprice ; but passing over this entirely, he shows not the least appreciation of the fact that Lucretius was forced into his position by a recoil (an exaggerated recoil, of course) from the national religion of his day, with all its necessary results of sin and degradation. He talks knowingly of those 'modern writers who would fain make him (Lucretius) a mere enemy to the ancient polytheistic religion.' But do such critics know what this polytheistic religion was ? What its moral influences were ? Of what kind was the conception of Deity which Lucretius revolted from ? In short, has he ever spoken a word against any conception of God which assigns to Him goodness and universal power in the world ? Lucretius had not to do with the (in many respects) noble and beautiful worship of Greece at its best time. Paganism in his day had become a religion of sensuality and superstitious dread. As we have seen, the Gods of Rome, according to the popular conception of them, could inspire only repugnance and fear. In Mr. Buchanan's hands the poet becomes a 'mere' enemy of religion, impelled solely by a fanatic zeal against any and every spiritual conception. From this point of view, his earnestness in preaching Epicureanism simply shows that (as Carlyle has said of an eagerly proselytizing atheist) he 'was eaten up by the zeal of the devil's own house'—nothing further ! And this means that he was a *mere* monster ; for one who avows Lucretius's creed for simply these reasons is nothing more than this. This estimate of Lucretius is barely consistent with the facts of human nature, and is, moreover, thoroughly unhistorical.

In truth, Lucretius did good service to religion. It was commonly believed in his day that the world is a machine, with many hands tampering with it, sometimes stopping it, and then setting it going again. But surely such a notion is utterly fatal to any worthy conception of Divine action. The belief in a regular order in Nature, in one Power at work instead of many, was like a great breath

of cool air, bringing calm where before all was confusion and the alarm of utter uncertainty. It is necessary for men to realize that there is but one Power at work around them before they can form any notion of Divine action which will not be at once refuted by the manifest facts of Nature. It is true that after the old notion of many Divine agencies had been discarded, the conception of Nature as a new self-working Power might easily come, and Lucretius can hardly help at times speaking of Nature as if he denoted by it some active force or agency. Still, we must beware of attributing to the poet ideas which are foreign to him.[1] Nature, as he intends to use the word, means only the laws of Nature, the habits of the world—that is all. Lucretius, indeed, had toilsomely levelled the road and prepared the way by which men might mount up to enjoy a truer conception of God in His relation to the world ; but though he made a path for others coming after him, he never ventured himself to ascend by it. He could not say, as does our own dear Chaucer—

'Lo ! I Nature,
Thus can I form and paint a creature,
When that I list ; who can me counterfete ?
Pygmalion ? Nought though he alway forge and bete
(prepare)
Or grave or paynte, for I dare well sayn
Apollo's Zeuxis shoulde wish in vain,
Either to grave, or paynte, or forge, or bete,
If they presumed me to counterfete.
For He that is the Former principal
Hath made me his Vicar General
To form and paint earthly creature
Right as me list : all things are in my cure
Under the moone that may wane and waxe,
And for my work nothing will I axe.
My Lord and I are fully at accord.'[2]

[1] For instance, Mr. Symonds says that Lucretius, 'dropping the phraseology of atoms, void, motion, or chance, spoke at times of Nature as endowed with reason and a will,' but no one of the passages which he quotes (v. 186, 811, 846) appears to have this meaning.

[2] From the 'Tale of the Doctor of Physic.'

When Lucretius wrote—

'Natura videtur
'Ipsa sua per se sponte omnia . . . agere,'[1]

he rose to a grand conception. Yet he would have been horror-stricken at the thought of taking the further step, and affirming that while the old Gods were false, Nature is but the Will of the one God at work. It was reserved for a great religious thinker of Latin race to say, 'Dei voluntas natura rerum est.'[2] Augustine was a man humble enough and wise enough to learn from those most violently opposed to himself in opinion, and we know not what light he may have owed to Lucretius's poem.

If Lucretius never shared Augustine's belief, we must remember that such a thought seems never even to have occurred to him. Possibly, had he lived longer, and had his mind grown free enough from the iron yoke of his master, he might have seen that the new conception, *Natura*, necessarily involved the existence of One Divine Power, omnipresent and all-powerful. But as we see him in his poem, it appears as if he could not conceive of omnipotence in Deity. In one passage he expressly denies it—the universe is too vast, he says, to be governed by the Gods ; no one can conceive of a Deity who 'can be present in all places at all times.'[3] Elsewhere he

[1] ii. 1090-1092. [2] Augustine, 'De Civitate Dei,' xxi. 8.

[3] 'Nam pro sancta deum tranquilla pectora pace
Quæ placidum degunt ævom vitamque serenam,
Quis regere immensi summam, quis habere profundi
Indu manu validas potis est moderanter habenas,
Quis pariter cœlos omnis convertere et omnis
Ignibus ætheriis terras suffire feracis,
Omnibus inve locis esse omni tempore præsto.'
ii. 1090-1104.

'Et simul in multas partis qui credere possis
Mittere ? an hoc ausis nunquam contendere factum,
Ut fierent ictus uno sub tempore plures ?
At sæpest numero factum fierique necessest,
Ut pluere in multis regionibus et cadere imbris,
Fulmina sic uno fieri sub tempore multa.'
vi. 411-416.

Compare also the whole paragraph, vi. 379-422.

speaks as if it were equally absurd to attribute omniscience to the Gods. One cannot help contrasting with such passages the Hebrew conception of Jehovah, infinitely powerful and infinitely wise.

'Who hath measured the seas in the hollow of His hand, and meted out heaven with a span, and comprehended the dust of the earth in a measure, and weighed the mountains in scales, and the hills in a balance? Who hath directed the Spirit of the Lord, or being His counsellor hath taught Him? . . . It is He that sitteth upon the circle of the earth, and the inhabitants thereof are as grasshoppers; that stretcheth out the heavens as a curtain, and spreadeth them out as a tent to dwell in. . . . To whom then will ye liken Me, or shall I be equal? saith the Holy One.'[1]

To the same effect writes many an old Psalmist,[2] who feels, moreover, that, much as he has thought of God's working, he knows infinitely little of it. 'Behold, these are but the outskirts of His ways.' Lucretius, on the other hand, cannot think of God in His relation to the world except as a man-like artificer. He never realizes Divine action except in the narrowest and feeblest way. Can Lucretius be excused in this? By no means. Distinctly and emphatically he is to be blamed in that he entirely cast away the best thought of the wisest who had gone before him. He simply ignores the teaching of Socrates, of Plato, and many another Greek thinker. We cannot, indeed, blame Lucretius for rejecting the Academic physics. Plato's Demiourgos became transformed in the hands of his disciples and of their critics into a gigantic Divine Craftsman who fashions the world from without. This conception must have been repellent to Lucretius: the facts of Nature told him that such a God was impossible. All living things, he saw, were gradually

[1] Isa. xl.

[2] Compare Ps. cxxxix. 6-9, xcv. 3-5, lxv. 5-8, cxxxv. 5-7, cxlvii. 4, 5, and especially the whole of Ps. civ., where the Psalmist shows how the whole world has its being in God.

evolved from within.[1] Doubtless both Plato and Aristotle went beyond his range, for Lucretius was little of a metaphysician. He does not even argue against the belief that the Divine nature is omnipotent and all-wise ;[2] he merely leaves it out of account. Might he not have learnt from Socrates, who, as Xenophon tells us, 'held that the Gods take care of men, though not in the fashion that the many believe. For these think that the Gods know some things, but others they do not know; Socrates considered that the Gods know all things, both what is said and what is done and what is meditated in silence, and are present everywhere, and give intimations to men concerning all human affairs.'[3] Lucretius, indeed, deserves the rebuke administered by Socrates to Aristodemus : 'It becomes you, therefore, not to suppose that your mind is able to think about things here and about things in Egypt and in Sicily as well, but that the mind of the Deity is unable to take heed at the same time of all things.' In truth, he tells him, 'the Divinity is so mighty and of such a nature as to see all things and to hear all things at once, and to be present everywhere, and take care of all things at the same time.'[4] The very school whom Lucretius so bitterly opposed—the Stoics—weak as their physics were, how much grander and more adequate than his was their conception of God—of one universal Providence which governs all things. No doubt Cleanthes was an author despised by Epicureans, yet Lucretius must at some time have read his grand 'Hymn to Zeus':[5]

[1] The Almighty Artist of Plato's parable, who fashions the *Kosmos* by stamping matter with the pattern of the Ideas, inspires the formative impulse of life into all things from within. (Plato's *Kosmos* is not inorganic but animated, a vast living creature and a God.)

[2] In his admirable chapter on Socrates, Grote curiously misrepresents the teaching of the latter as to Divine action in the world (see the Appendix).

[3] Xenophon, 'Memorabilia,' i. 1, 19. [4] *Ibid.*, i. 4, 17, 18.

[5] Stobæus, 'Ecl.,' i., p. 30. Cleanthes, famous even among the many remarkable figures of Greek philosophy for his noble

'O Zeus, thou most glorious of the immortals, many-named, at all time almighty, O founder of Nature, who guidest all things according to law. . . . Thee this whole world, revolving around the earth, obeys whithersoever thou guidest it, and is willingly governed by thee. . . . Without thee no work is done on earth nor in the sphere of the Divine ether, nor on the sea, save only what the wicked perform in the foolishness of their hearts.'

There is an enthusiasm in this hymn which Lucretius could hardly share, a glad feeling of loyalty, a delight in the law of God which is happiness to those who obey it, but misery to those who do not. 'The wicked, ever desiring to get gain, see not, neither do they hear the universal law of God, obeying which with their mind they might win a worthy life.' Cleanthes' closing prayer to Zeus to scatter from the soul the 'dire ignorance' which makes men prefer ambition or greed or the pleasure of the body to righteousness, the entreaty 'to share in the understanding in the might of which thou, O Father, dost with justice govern all things'—such an aspiration shows a higher craving for personal goodness and purity than we anywhere find in Lucretius's poem, which (though full of nobleness, and burning with the desire to help humanity) springs from a lower level. Lucretius has no such faith in one supreme Providence ordering all things—δίκης μετά—'with justice.' He has only the—

'Varios conexus, pondera, plagas,
Concursus, motus, per quæ res quæque geruntur,'

---

and strenuous life, was originally a boxer, but came to succeed Zeno as chief of the Stoic school (about 260 B.C.). For years, while studying under Zeno, he chose to support himself by the severest bodily labour as a water-drawer at night in the gardens of Athens. His contemporaries considered him by no means brilliant, and reproached him with lacking 'boldness' as a thinker. Heroic figures like his remind us of the intense moral earnestness—a passion veiled by a never-failing habit of self-command—which marked the higher types of Greek character.

(' the various entanglements, weights, blows, clashings, and motions of the atoms by means of which things severally go on '). This is Lucretius's substitute for Providence, while his creed is the ' Nam certe neque consilio '[1] (' Verily, not by design '). But just as we often see nowadays that the professor of cruel and gloomy doctrines is unselfish and even hopeful in character, happily Lucretius also is in many ways better than his creed.

Lucretius keeps sternly from us every fact of his own personal history. Can that history, to any extent, in despite of his silence, be wrested from his book ? There is very weighty evidence as to the life of Lucretius in the poem itself, evidence which can only be judged of by those who have long and lovingly studied that poem. For others that evidence does not exist. ' Mere guess-work built upon conjecture,' such may call it. Slight in themselves are the signs by which we read the characters of other men. Yet in the light of long and close intercourse their meaning becomes so unmistakable that we have to accept of it. The great work of Lucretius is deeply, uniquely stamped with his own very marked individuality. There is in the atmosphere of the poem an indescribably lurid element which tells of past storms in the poet's history, and may be thought to forebode a stormy closing. The story of the philtre and consequent suicide is a sad one. Yet, if that story were false, there is behind it a background consisting of temperament, mood, and creed which must be taken into account. All poets, indeed, are not like Alfred de Musset. Yet the ardent temper of Lucretius tells of a nature not easily curbed. There is, somehow, a jarring strain running

[1] ' Nam certe neque consilio primordia rerum
Ordine se suo quæque sagaci mente locarunt,
Nec quos quæque darent motus pepigere profecto,
Sed quia multa modis multis primordia rerum,
Ex infinito iam tempore, etc.'

v. 419-427.

The whole passage is translated at p. 141.

through the poem as of a noble nature which has lived in an element unfit for it, and has lost its buoyancy and natural gladness thereby. The poet speaks in the tone of one weary of worldly pleasures, who has reached—by what strange or ill-starred ways we know not—that sad Garden of Proserpine, where men sit and rejoice that

> 'Even the weariest river
> 'Winds somewhere safe to sea.'

The more we love and admire Lucretius—as, indeed, he deserves—the more are we pained that he could have written one or two brief sentences, which repel us by their coldly utilitarian moral tone—and surprise us, too, for Lucretius, with his high enthusiasm, has taught us to forget the fact that Naturalism cares naught for chivalrous feeling or for purity.[1] (Probably, it is true, these do but express sentiments acknowledged by Epicureans : this might excuse an ordinary writer, but not a poet of high genius.) Doubtless the *majestas cognita rerum* had power to uplift the character, but it was an intellectual rather than a spiritual force. Freedom from superstition does not arm men against the special temptations which beset them. And, indeed, Epicurus's teaching had great shortcomings on its spiritual side. As we have seen, he explains the distress of mind felt by the criminal as solely and merely due to the fact that, until the day of his death, he never can feel certain that he will not be found out. How far on this subject does Epicurus, with all his stern asceticism, fall behind the Stoics, who taught that sin is disloyalty, and that the wrong-doer is unhappy because he feels himself a lonely and a jarring thing in the universe ! Epicurus, on the other hand, acknowledged no Power above us which

[1] But Montée has grievously misunderstood iv. 1069, 1070, which he calls 'une parole odieuse.' *Amorem* here means a passionate love as compared with a calm and sober one, as the contrast between *sanus* and *miser* (love-sick), in the following couplet proves.

claims our allegiance as a right, and to obey which is gladness beyond all other joy—

> 'Nor know we anything so fair
> As is the smile upon Thy face.'

But the flowers do not thus break into blossom nor the birds burst into glad songs round the stern path Lucretius goes.

No reader of Lucretius's poem can help being struck by his frequent expressions of gratitude to Epicurus. We cannot doubt that these are genuine and from the heart, and that the teaching of Epicurus had brought to him help in his time of need. If, then, the poet regarded Epicurus as his deliverer, it may be asked, From what had Epicurus saved him? When we read Lucretius's poem we cannot doubt that he owed to Epicurus more than a merely intellectual debt—more than the light of science—more, too, than deliverance from superstitious fears. Lucretius speaks with the voice and the emotion of one who has known from personal experience in some form the miseries of a life of ambition—who has known, too, the mad Roman lust for luxury and pleasure, and for ever new pleasures, and who has himself felt the 'sad satiety' that comes from drinking deep of such delights. He writes like one who (to use his own image) watches, safe on shore, the vessels in peril in the grip of the tempest, and vividly remembers how he himself was once helplessly tossing on the same sea. The poems of Catullus show what a vortex of luxurious and sensual life was the Roman capital in Lucretius's day, while history shows how utterly the enormous appetite for wealth and power had demoralized the upper class. Into that vortex it may be that Lucretius had sunk far deeper than ever Catullus did. For him it was impossible to float so lightly on the top of foul depths as did that bright and rare spirit. We can imagine Lucretius brought by his own eager and passionate nature into some dark crisis of disappointment and despair—far more

readily than one like Catullus, whose spirit was more buoyant and of swifter recovery. Is it impossible that at such a crisis Epicureanism, of the nobler kind, may have become known to him? In the teaching of Epicurus,[1] with its rigid rule of life, its strict checks on ambition, its stern repression of sensual desire, its insistence on the supreme duty of preserving tranquillity of soul, a man like Lucretius may have found a true deliverance—a deliverance of lower type, but as real as many a Greek youth had found in the words of Socrates. If Epicureanism had not the power to make men spiritual athletes, rejoicing in combat, at least it supplied something firm to hold by so as not to be swept away. How often do the words 'peace,' 'perfect peace' ('pacem,' 'placidam pacem') recur in Lucretius's poem! To a man tormented by his own eager ambition and its disappointments, or deeply conscious of the tyranny of his own lower nature, there is no blessing greater than peace. Epicurus, indeed, insisted on the checking of all violent desires as the one thing needful. By this—to use his own phrase—'all the storm of the soul is put an end to.'[2] It may be that the peace which Lucretius had found, and which his master had brought him, was to some extent ignoble and not much worth having. Epicurus, indeed, determined to live in the cellarage of the house of life instead of the upper chambers, because it is safer, and there are such things as thunderstorms. Still, Epicurus seems, judging from the poet's own words, to have brought to Lucretius *exactly that which he most needed*, and possibly at some crisis of his personal history. For this Lucretius was rightly grateful.

There is something pathetic in Lucretius's deep affection for Epicurus. Such warmth of gratitude is the sure

[1] Epicureanism ought, as Martha says ('Poème de Lucrèce,' p. 35), to be called 'the doctrine of renunciation' rather than the doctrine of pleasure. Epicurus was himself, as we have seen, a man of the most self-denying and almost ascetic type.

[2] λύεται πᾶς ὁ τῆς ψυχῆς χείμων (from the letter to Menœceus, Diog. L., x., 128).

sign of a noble nature. The earnest way, too, in which he casts himself on the teaching of his master, sincerely and entirely accepting it—is not this the true attitude in which a man ought to receive all highest truth ?

> ' Rebus suis quisque relictis
> Naturam primum studeat cognoscere rerum.'

' Let each man lay aside his own affairs and set his heart first of all to learn the nature of things.' Such, according to the parable, was the temper of the man who, having found a treasure, sold all that he had to purchase the field in which it lay. Natures like this are not common. Had Lucretius lived in a better day, and had the Master who was greater than Epicurus, or even than Socrates, called on him to follow, would not this ardent soul have cast aside all to follow him ? and, if so, he who is so entirely loyal to the truth he grasps, and who so utterly loathes the cowardice of superstition—would he not to a higher truth than his old philosophy have proved faithful even to martyrdom ? The test of any man's character is not merely the side on which he stands, but the manner in which he stands by it, whether he be of the temper to ' contend to the uttermost ' or not. To Lucretius no one can impute the crowning condemnation of every frustrate spirit—

> ' The unlit lamp and the ungirt loin.'

So great earnestness and courage cannot exist only to be thrown away.

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